UNIVERSITY OF CALIFORNIA
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AGRICULTURAL EXPERIMENT STATION
BERKELEY, CALIFORNIA

THE ORANGE INDUSTRY: AN ECONOMIC STUDY

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BULLETIN 622

JUNE, 1938

CONTRIBUTION FROM THE
GIANNINI FOUNDATION OF AGRICULTURAL ECONOMICS

UNIVERSITY OF CALIFORNIA
BERKELEY, CALIFORNIA

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THE ORANGE INDUSTRY—AN ECONOMIC STUDY[1, 2, 3]

J. M. THOMPSON[4]

SUMMARY

ORANGES ARE PRODUCED to some extent on all five continents but because of climatic requirements are restricted to tropical, semitropical, and subtropical countries. World production is estimated to have been a little more than 200 million boxes during recent years, slightly more than one-fourth of this amount being produced in the United States, which is the largest orange-producing country.

Approximately 97 per cent of the United States production originates in two states, California furnishing 62 and Florida 35 per cent, with the balance distributed among the states of Texas, Arizona, Louisiana, Alabama, and Mississippi. Even though the year-to-year fluctuations in production have been rather large, the long-time trend has been steadily upward in both California and Florida, with an average increase of about 6 per cent a year in California and 8 per cent in Florida over the past fifteen years. The increased production in California has been chiefly in summer oranges.

In California, oranges are grown on approximately 26,000 farms, comprising a total of 238,000 acres (1936 survey) of orange trees in more than 30 counties; but 96 per cent of this acreage is located in only seven counties—Orange, Los Angeles, San Bernardino, Tulare, Riverside, Ventura, and San Diego, listed in their rank as to total orange acreage.

Valencia orange trees are planted on 60 per cent of the California acreage and the balance consists almost entirely of Washington Navel orange trees. The fruit from the Valencia trees is marketed principally in the summer months when Florida is sending few oranges to market, but these California Valencias must compete with heavy supplies of other fresh fruits. California Washington Navels, on the other hand, meet very keen competition from Florida orange shipments; in fact, during the winter season, when they are marketed, Florida furnishes approximately half of the oranges consumed in the United States.

Although total United States orange shipments are still heavier in the winter than in the summer, the proportion of shipments during May

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[1] Received for publication November 1, 1937.

[2] Paper No. 73, the Giannini Foundation of Agricultural Economics.

[3] This bulletin supersedes Bulletin 457, *Oranges* (*Series on California Crops and Prices*), by H. R. Wellman.

[4] Assistant in Agricultural Extension; resigned July 1, 1937.

through October has increased until the percentages are about 60 and 40 for winter and summer shipments respectively.

The consumption of oranges has increased in the United States along with the increase in production; and this greater use of oranges is striking when compared with the consumption of other fresh fruits on a per-capita basis. While the annual per-capita consumption of oranges increased from 19 to 26 pounds during the decade following the years 1923–1925, the per-capita consumption of fourteen important fresh fruits, including oranges, decreased from 163 to 149 pounds per annum. It appears that oranges have been replacing apples; for the main part of the decreased consumption of other fruits has been in the use of apples.

Most of the oranges consumed outside of California and Florida in the United States are unloaded in the large cities east of the Mississippi River and north of the Mason-Dixon line. Florida has the advantage of lower costs of transportation to these large centers of population, but California furnishes over half of the oranges for these cities because California fruit is in the market all the year round. The four markets of New York, Chicago, Boston, and Philadelphia unloaded one-third of the total United States orange shipments during 1934–1936.

The popularity of orange juice and the large supplies of oranges at low prices have led to many efforts to prepare and market canned orange juice. As a result of these efforts, the canning of orange juice has become an increasingly important industry during recent years; however, this product faces strong competition from canned tomato, grapefruit, and pineapple juices.

In common with most other prices, those of California oranges—both winter and summer—rose during the decade 1921 through 1930 and then fell precipitously in 1931 to remain low for three seasons; usually summer-orange prices averaged definitely higher than those for winter oranges. During this thirteen-year period, the price of oranges rose higher and dropped lower than the prices of most other commodities, as exhibited by the wide fluctuations in the purchasing power of oranges. There has been some recovery from the lowest prices of depression years, especially during the season 1936–37, because of greater national income and short California supplies resulting from the freeze.

The total gross farm income to California orange growers has followed much the same fluctuations as prices, but in some instances price and income have moved in opposite directions. Of all crops grown in California, oranges bring by far the largest total gross farm income.

The United States receives a few oranges from Puerto Rico and Japan; but the amount is small in comparison with exports. United States orange exports usually run from 7 to 10 per cent of total shipments, and they have been sufficient to place this country third in the rank of orange-exporting countries during the seasons 1933–34 through 1935–36. United States shipments of oranges to foreign countries have fluctuated widely from year to year, but they have steadily increased over any decade. Total United States exports during 1935–36 were divided almost equally between California and Florida shipments. Canada formerly received over 90 per cent of the United States orange exports, but during recent years (with the exception of 1936–37) the proportion going to Canada has fallen below 60 per cent, even though the actual amount of shipments has increased. Exports to the United Kingdom, the second-most-important foreign market for the United States, experienced large increases both in actual boxes and in proportion to total exports previous to 1936–37. Because of the strong competition of Spanish and Palestine oranges, California and Florida oranges have not been a large factor in the supply for this market during the winter season; but for most seasons Valencias from California have moved to the United Kingdom in sufficient volume to amount to over 10 per cent of total United Kingdom summer-orange imports. As a result of the smallest commercial supply of California summer oranges since 1930 and increased competition from Brazil and South Africa, the United States furnished a negligible proportion of the United Kingdom summer oranges in 1937.

The leading orange-producing countries ranked according to the size of their production in 1932–33—1934–35 are United States, Spain, Brazil, China, Japan, Italy, Palestine, Mexico, Uruguay, Union of South Africa, and Australia; however, this does not indicate their importance in foreign trade in oranges. Spain usually exports more than four times as many oranges as any other country, furnishing around one-half of the winter oranges and one-fourth of the summer oranges for the United Kingdom market. Palestine has jumped to second place during recent years in boxes of oranges exported, and most of its orange exports go to the United Kingdom during the winter months. The United States has ranked third during most of the last few years, with Italy, Brazil, and the Union of South Africa following in order. Both Brazil and the Union of South Africa have been increasing their exports rather rapidly; these two countries now furnish over 60 per cent of the oranges going into the United Kingdom during the months May through October.

In the United States an increase in orange production may be expected as the nonbearing acreage comes into bearing and the present bearing trees grow older. The production of both summer oranges in California and winter oranges in Florida will become larger under normal growing conditions. Also, a large production increase will probably occur in Palestine winter oranges, as well as some increase in summer oranges grown in Brazil and South Africa. The outlook is for substantial increases in orange production in California, the United States, and the world during the next decade.

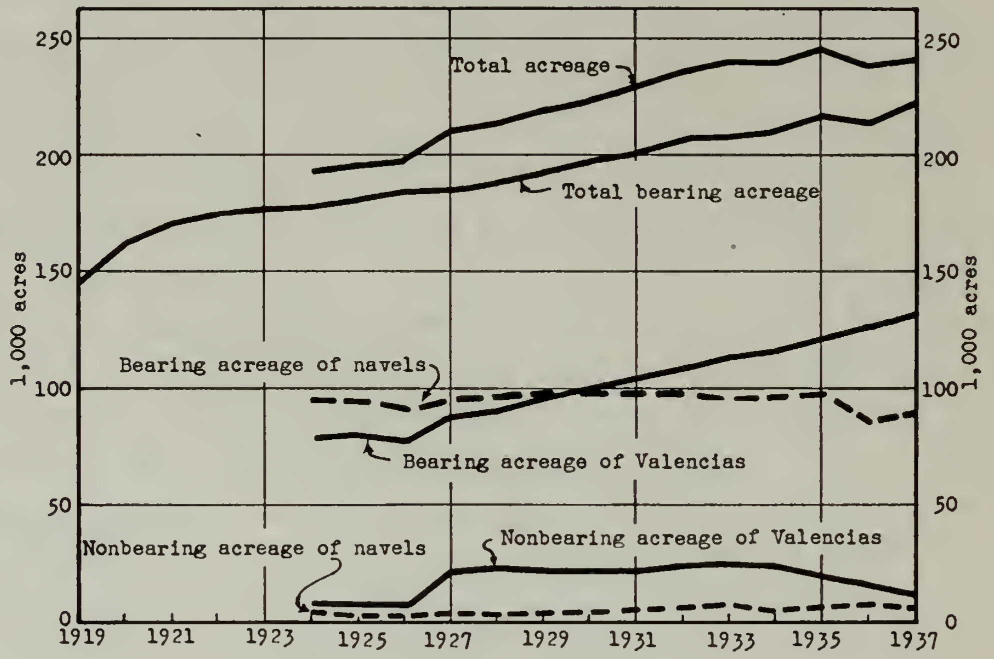

Fig. 1.—Orange acreage in California, 1919–1937. Miscellaneous varieties are included with navels.
Data from table 22.

ACREAGE

United States Acreage of Oranges.—The total acreage of orange trees in the United States was around 525,000 acres in 1937. Of this number, approximately 93 per cent, or something less than 490,000 acres, were bearing, and 7 per cent were not yet of bearing age. As compared with the situation twelve years previously, the bearing acreage represented an increase of about 70 per cent, or 200,000 acres.

Of the bearing acreage, about 26 per cent is from five to ten years old, 21 per cent is from eleven to fifteen years old, and around 53 per cent is more than fifteen years old. The nonbearing acreage might be only sufficient to maintain the bearing acreage if the latter were evenly distributed as to age. However, the fact that about 47 per cent of the bearing acreage is less than fifteen years old indicates that production will continue on an upward trend in the absence of heavy losses from natural forces, or widespread acreage removal.

About 46 per cent of the total United States bearing acreage is now in California, 46 per cent is in Florida, and 6 per cent is divided between Texas and Arizona. The balance of around 10,000 acres is located in

Louisiana, Alabama, and Mississippi. Most of the acreage in Louisiana is planted to navels, and most of that in Alabama and Mississippi to satsuma mandarins.

Total Acreage in Principal Orange-producing States.—Estimates of bearing acreage in California for each year since 1919 are shown graphically in figure 1. It illustrates the fact that in the eight years following 1929, bearing acreage increased from 193,595 to 221,800 acres, an increase larger than that in the previous eight years. In the next few years there will be additions in excess of replacement needs from the nonbearing acres, which represent between 7 and 8 per cent of the total orange acres in the state.

Approximately 227,000 acres of orange trees were bearing in Florida during 1937, about 60 per cent of which were Parson Brown, Hamlin, Homosassa, Pineapple, and other early and midseason varieties.[5] Nevertheless, it is expected that for a few years the production of Valencia and other late varieties will increase relative to the early and midseason varieties, because of the lower average age of the Valencia trees. Around 56 per cent of the latter trees have not yet reached fifteen years of age, the age of full production in Florida, while 48 per cent of the trees of early and midseason varieties are less than fifteen years old. The percentage of bearing acreage in each of several age groups is shown in figure 2.

Slightly less than 60 per cent of the 23,000 bearing acres in Texas in 1937, as well as the 6,000 bearing acres in Arizona, consist of early varieties. These trees in Texas are very young, 62 per cent being from five to ten years of age, and 33 per cent from eleven to fifteen years. In Arizona, over 80 per cent of the bearing orange trees are less than ten years of age.

Winter- and Summer-Orange Acreage in California.—In 1927 the bearing acreage of navels and miscellaneous varieties[6] in California was 95,992, while that of Valencias was 88,502 acres. Since then the bearing acreage of navels and miscellaneous varieties, which are marketed chiefly in the winter season, has decreased somewhat; and it has been far surpassed by the bearing acreage of Valencias, which are marketed in the summer (see fig. 1). The bearing summer-orange acreage increased to 131,900, a rise of 49 per cent between 1927 and 1937. Hence, a much larger proportion of this bearing acreage consists of young trees (see fig. 2); and in addition, 68 per cent of the total nonbearing orange acreage is in summer oranges.

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[5] In Florida the bulk of the early and midseason varieties are picked from October through February, and the late varieties mainly from March through May. Hence all Florida oranges compete chiefly with the Washington Navel in California, which matures during the period November through May. The picking season for California late oranges (mainly Valencias) runs from May through November. Practically all of the oranges grown in Texas and Arizona, as well as Florida tangerines and satsumas in the Gulf states, mature during the six months October through March.

In this bulletin oranges marketed during November through April are classified as winter oranges and those marketed from May through October as summer oranges.

[6] Most of the oranges included under "navel and miscellaneous varieties" are of the Washington Navel variety, but the term includes all oranges in the navel group and also other winter varieties.

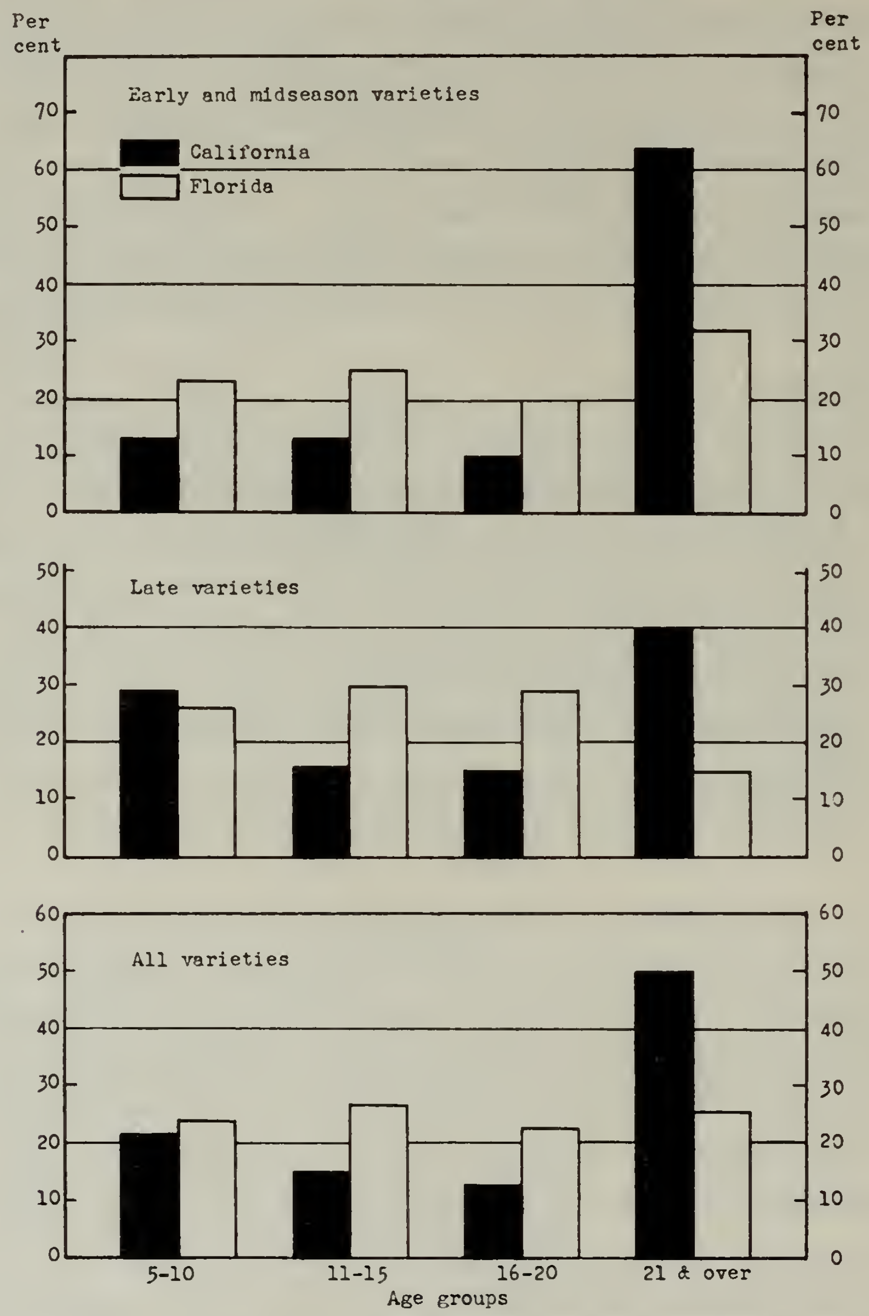


Fig. 2.—Percentage distribution by age groups of bearing orange acreage in California and Florida, 1937. (All oranges from Florida compete mainly with California navels.)

Source of data: United States Department of Agriculture Bureau of Agricultural Economics. The agricultural outlook for 1937–38. Citrus fruit. pp. 6–7. 1937. (Mimeo.)

Orange Acreage by Counties in California.—Although the acreage survey of 1936 lists some acreage in over 30 counties on 26,103 farms, and the 1935 United States Census had farms reporting orange trees in 44 counties, the commercial production of oranges in California is confined to a few counties. Figure 3 shows that 96 per cent of the total California bearing orange acreage is located in the seven counties of Orange, Los Angeles, San Bernardino, Tulare, Riverside, Ventura, and San Diego. Figures 3 and 4 show that Orange County is well named because, in spite of its small size, it has almost 30 per cent of both the bearing and nonbearing acreage in the state. Ventura and San Diego counties appear to have a larger proportion of young trees than other regions of the state.

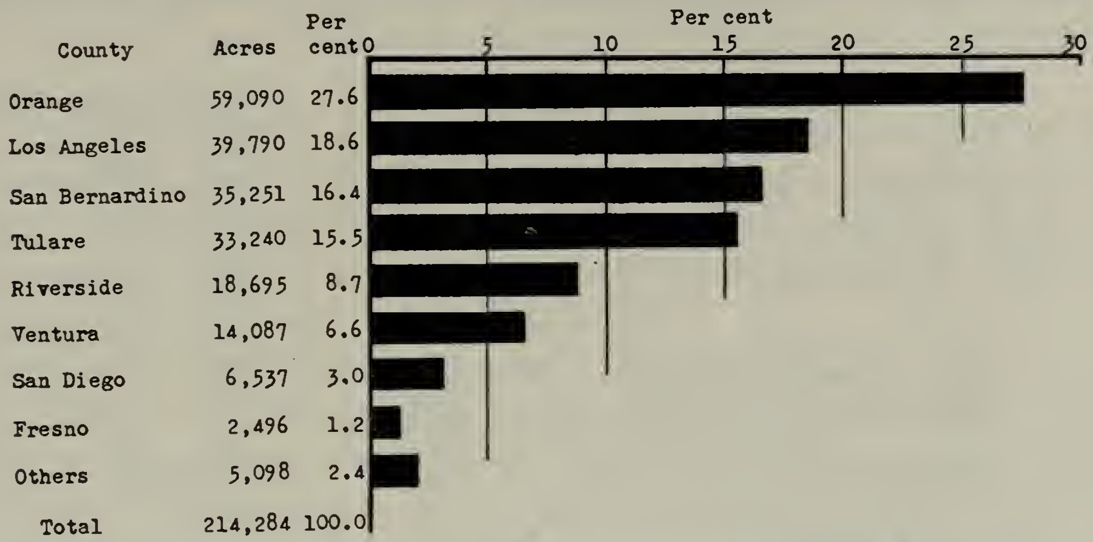


Fig. 3.—Percentage of California bearing orange acreage in main orange-producing counties, 1936.
Data from table 23.

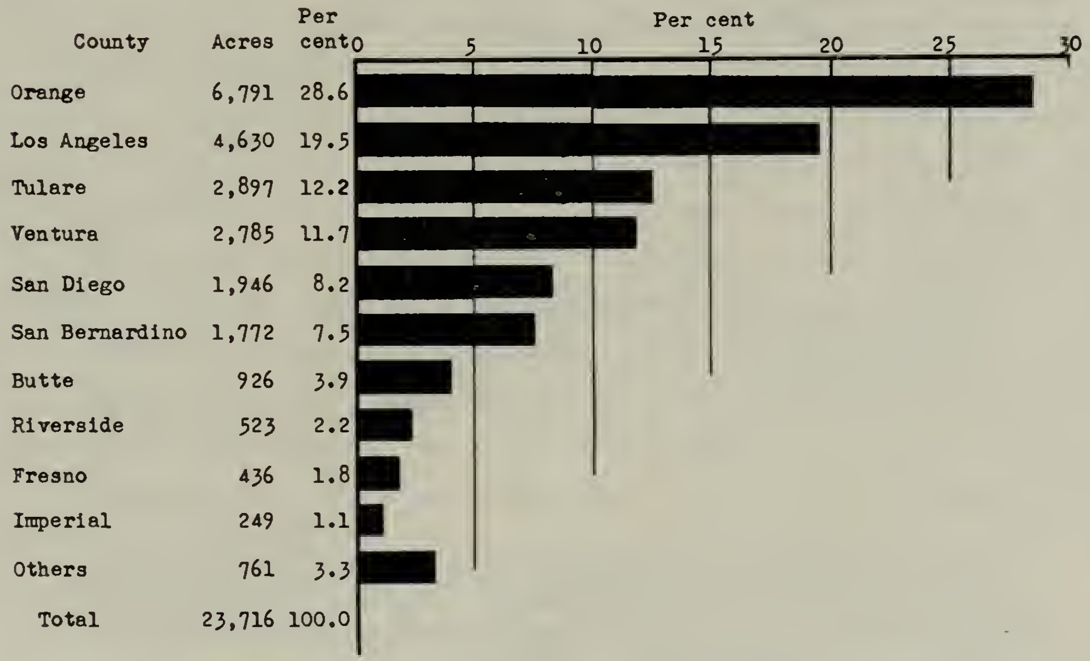
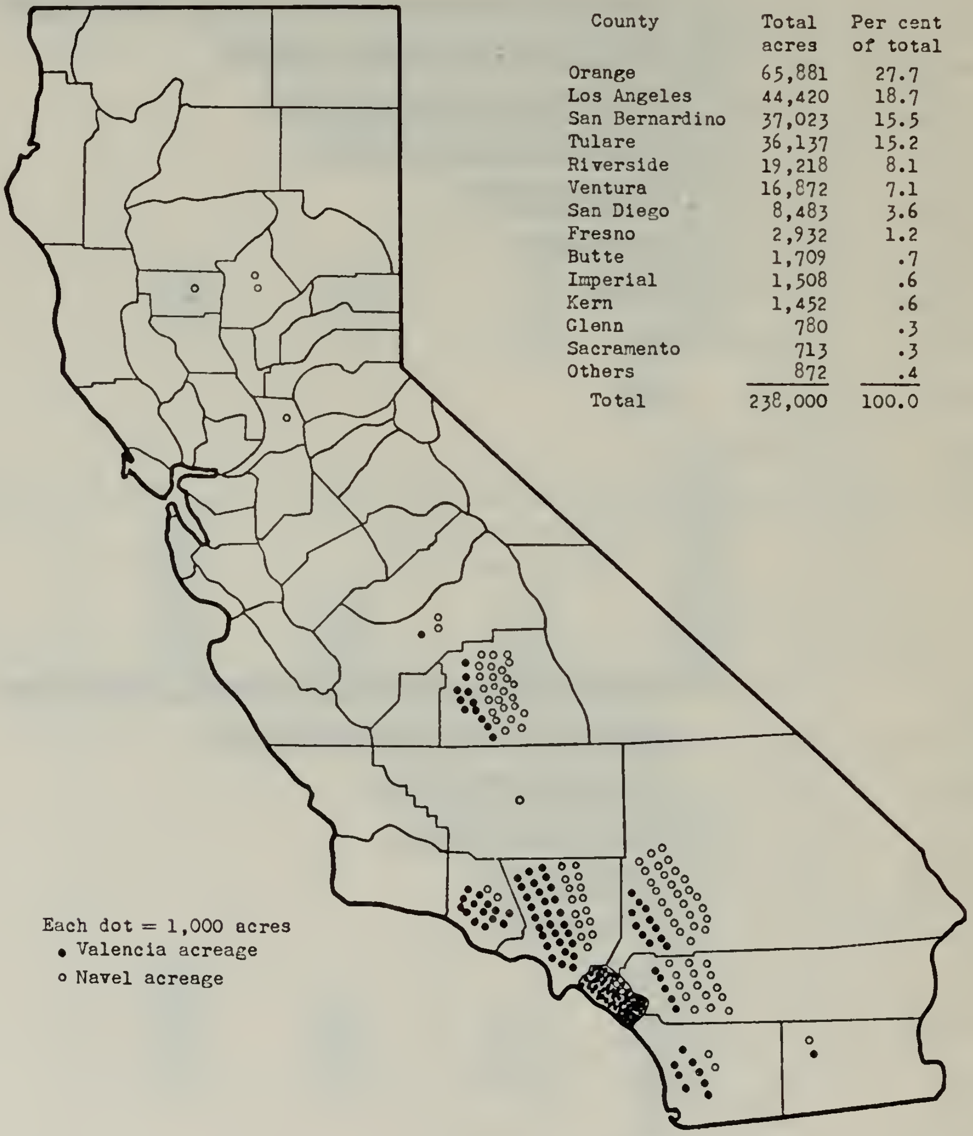


Fig. 4.—Percentage of California nonbearing orange acreage in main orange-producing counties, 1936.
Data from table 23.

Orange County acreage consists almost entirely of Valencia orange trees, and Los Angeles, Ventura, and San Diego counties also have a predominance of this variety (fig. 5). The other three important counties, San Bernardino, Tulare, and Riverside, have mostly Washington Navel orange trees.



County	Total acres	Per cent of total
Orange	65,881	27.7
Los Angeles	44,420	18.7
San Bernardino	37,023	15.5
Tulare	36,137	15.2
Riverside	19,218	8.1
Ventura	16,872	7.1
San Diego	8,483	3.6
Fresno	2,932	1.2
Butte	1,709	.7
Imperial	1,508	.6
Kern	1,452	.6
Glenn	780	.3
Sacramento	713	.3
Others	872	.4
Total	238,000	100.0

Fig. 5.—Bearing and nonbearing acreage in California in 1936. (The relative positions of the two kinds of dots do not indicate the position of the acres of each variety; they merely picture the proportion of each in the different counties.)

Data from table 23.

PRODUCTION

United States Production.—The total United States orange production has just about doubled in the past fifteen years. During the four seasons, 1919–20 to 1922–23,[7] the production averaged 28,027,000 boxes; whereas the four seasons, 1933–34 to 1936–37 had an average of 54,652,000 boxes. The average annual increase was 1,902,000 boxes; but as shown in figure 6, fluctuations in orange production were large, with crops ranging between the 22,539,000 boxes in 1921–22 and the 63,988,000 boxes in 1934–35, the largest production on record. Prospects, as of May 1, 1938, indicate a production of about 70,600,000 boxes for 1937–38.

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[7] Crop years are used, unless otherwise noted, for the United States orange industry. In California the crop year is November through October; in Florida, September through August.

Almost all of the oranges are produced in California and Florida, but the states of Texas, Arizona, Louisiana, Alabama, and Mississippi together produce around 3 per cent of the United States total. Texas has had a phenomenal rate of increase in production and now produces more than the other four minor states combined.

California and Florida Production.—Throughout these same four seasons, 1933–34—1936–37, average California production was 34,090,000 boxes, or 62 per cent of the United States total production, and that of Florida 19,050,000 boxes,[8] or 35 per cent. As a result of the severe freeze, California production for 1936–37 dropped to a figure near 30,000,000 boxes, while Florida production was the highest ever recorded—about 22,500,000 boxes.

The average California production of 34,090,000 boxes during the four seasons 1933–34—1936–37 consisted of 19,423,000 boxes of Valencias and 14,667,000 boxes of navels and miscellaneous varieties. Because many of the navels were picked before the freeze of January, 1937, their season's production was decreased slightly less than that of Valencias. Estimates indicate that the 1936–37 Valencia production was around 17,000,000 boxes and navels around 13,000,000 boxes in California. Prospects on May 1, 1938 indicate a California Valencia crop of 26,000,000 boxes in 1937–38 and a navel production of 16,000,000 boxes. In Florida, the average production for the past four seasons was divided as follows: 55 per cent early and midseason varieties (largely Pineapples), 33 per cent Valencias (which also compete mainly with California navels), and 12 per cent mandarins (mainly tangerines).

Of the total increase of 26,625,000 boxes in the national orange crop between 1919–20—1922–23 and 1933–34—1936–37, California contributed 15,383,000 boxes, or 58 per cent, and Florida 9,985,000 boxes, or 38 per cent. Even though California contributed much more of the increase in actual boxes, the percentage increase, or rate of growth, averaged only 6 per cent a year, as compared with 8 per cent in Florida.

Although the trends of production in California and in Florida have been steadily upward, the year-to-year fluctuations are often rather large, as illustrated in figure 6; and it is evident that California furnishes the bulk of the fluctuations in the United States orange production. Although annual variation in actual boxes produced is much smaller in Florida than in California, the fluctuations are approximately the same size in both states when they are expressed as a percentage of their respective productions. These variations are due in the main to climatic vicissitudes, particularly frost, wind, and heat; and on a few occasions the production in Florida has been reduced by drought or hurricane. Efforts have been and are being made to decrease the frost and wind hazard. The California freeze in January, 1937, furnished evidence of both the benefits of orchard heating and the need for improved orchard heaters.

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[8] Includes mandarins (mainly tangerines).

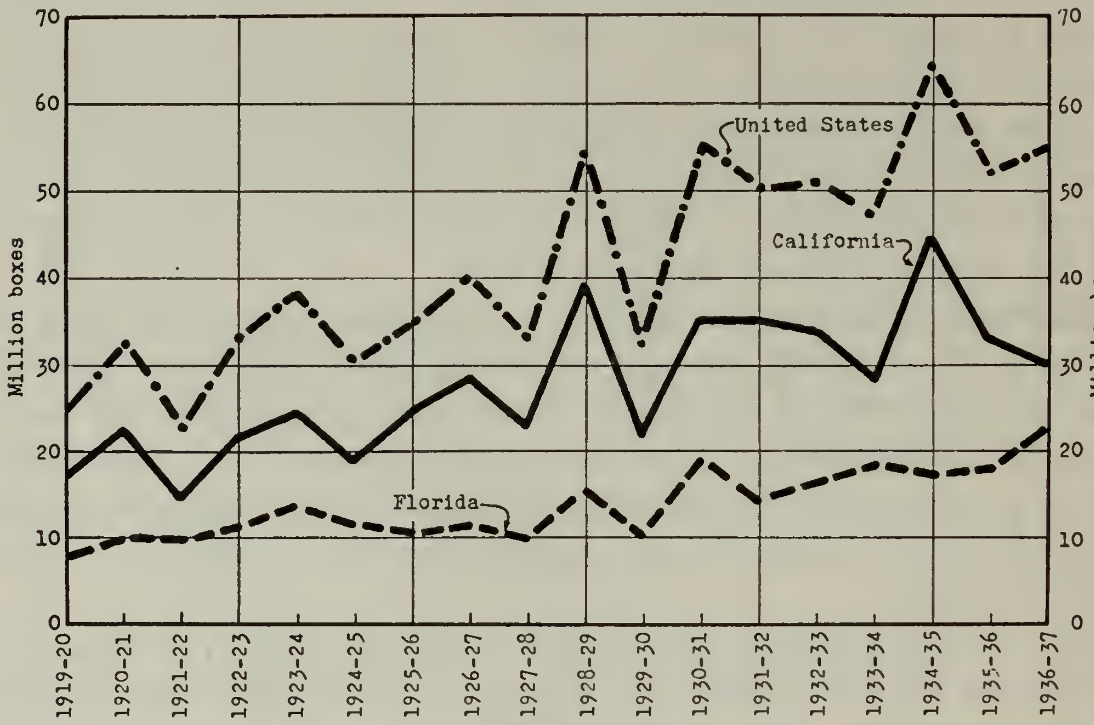

Fig. 6.—Total production of oranges in the United States, California, and Florida, 1919–20 to 1936–37.

Data from table 1.

Future Production Trends.—In California, the acreage of young bearing and nonbearing Valencia trees is larger than necessary to replace normal acreage removals. This indicates that the future trend of summer-orange production will continue to rise for several years under average weather conditions, while only a slight increase is in prospect for winter-orange production.

As illustrated in figure 2, many Florida trees are below the age of full bearing, and production there, which is almost all marketed during the winter season, may be expected to increase for several years. As more of the trees reach fifteen years of age, the tendency will be to produce a heavier tonnage of fruit.

As previously mentioned, Texas and Arizona furnish only a small part of the total supply of oranges produced in the United States, but this proportion may increase slightly in the future. Large percentages of the trees are either very young bearing trees or not yet bearing, hence the conclusion may be safely drawn that large proportional increases in orange production may be anticipated in these states during the next ten years, provided natural forces do not result in low per-acre yields or heavy acreage removals.

TABLE 1

Total United States Production of Oranges by States, 1919–20 to 1936–37

Crop year[*]	California	Florida[†]	Texas	Arizona	Louisiana[†]	Alabama[†]	Mississippi[†]	Total
	1,000 boxes[‡]	*1,000 boxes*[‡]	*1,000 boxes*[‡]	*1,000 boxes*[‡]	*1,000 boxes*[‡]	*1,000 boxes*[‡]	*1,000 boxes*[‡]	*1,000 boxes*[‡]
1919–20	17,073	7,533	9	80	37	20	31	24,783
1920–21	22,547	9,457	5	60	42	82	25	32,218
1921–22	13,921	8,371	5	80	50	82	30	22,539
1922–23	21,286	10,897	10	81	60	190	45	32,569
1923–24	24,324	13,725	6	86	75	225	55	38,496
1924–25	18,535	11,639	17	60	75	2	..[§]	30,328
1925–26	24,200	10,044	10	86	100	130	27	34,597
1926–27	28,167	11,512	41	75	150	75	42	40,062
1927–28	22,737	9,487	70	54	200	110	50	32,708
1928–29	38,994	15,588	115	99	220	85	30	55,131
1929–30	21,483	10,304	261	137	187	212	37	32,621
1930–31	35,470	19,211	250	139	287	3	2	55,362
1931–32	34,900	14,220	520	145	245	80	54	50,164
1932–33	34,265	16,200	325	147	278	120	80	51,415
1933–34	28,439	18,100	430	155	245	3	2	47,374
1934–35	45,047	17,600	650	170	293	140	88	63,988
1935–36	32,809	18,000	777	240	244	2	1	52,073
1936–37	30,063	22,500	2,000	220	309	56	26	55,174

[*] The crop year in California is November through October, in other states September through August.

[†] Includes mandarins.

[‡] Net content of boxes in California and Arizona is 70 pounds, in Florida and other states 90 pounds.

[§] Production negligible.

Sources of data:

1919-20 to 1934-35: United States Department of Agriculture Bureau of Agricultural Economics. Revised production of oranges, grapefruit, lemons and limes, 1919-1935. 3 p. September, 1937. (Mimeo.)

1935-36 to 1936-37: California Coöperative Crop Reporting Service. California citrus fruit report as of January 1, 1938. 1 p. 1938. (Mimeo.)

SHIPMENTS OF ORANGES

United States Annual Shipments.—United States shipments of oranges have, of course, increased with the rise in production; and for the country as a whole, these total shipments increased from an annual average of 61,355 cars during 1920–21—1922–23 to 99,303 cars during 1934–35—1936–37 (table 2). Even though actual California shipments increased from 41,189 to 58,813 cars between these two periods, the proportion originating in California has decreased because Florida shipments almost doubled between 1920–21—1922–23 and 1934–35—1936–37. The five other states have not figured much in orange marketings, but Arizona has shown some increase, and Texas has had the phenomenal increase of from no carlot shipments in the early years to over 4,000 cars last season.

TABLE 2

RAILROAD, TRUCK,* AND BOAT SHIPMENTS OF ORANGES† BY STATES OF ORIGIN, 1920–21 TO 1936–37

Year‡	California	Florida	Alabama	Mississippi	Louisiana	Texas	Arizona	Total
	cars§	*cars§*	*cars§*	*cars§*	*cars§*	*cars§*	*cars§*	*cars §*
1920–21	46,844	20,859	87	..	..	..	49	67,839
1921–22	28,376	15,718	145	..	..	..	78	44,317
1922–23	48,346	23,006	476	9	..	..	71	71,908
1923–24	44,905	33,431	600	13	3	3	94	79,049
1924–25	34,439	25,091	2	..	2	3	45	59,582
1925–26	47,017	19,625	338	8	1	6	96	67,091
1926–27	53,511	22,536	179	4	1	9	73	76,313
1927–28	43,693	16,453	312	15	251	26	33	60,783
1928–29	68,797	32,550	97	5	264	33	66	101,812
1929–30	43,053	17,312	485	25	278	156	90	61,399
1930–31	64,774	33,915	2	1	155	119	90	99,056
1931–32	61,615	24,436	175	40	84	245	66	86,661
1932–33	56,230	30,017	227	48	85	197	106	86,910
1933–34	53,948	37,337	..	1	45	964	126	92,424¶
1934–35	73,207	34,812	120	126	53	1,234	143	109,695
1935–36	59,888	35,253	..	..	18	1,493	206	96,858
1936–37‖	43,344	43,620	15	43	55	4,092	186	91,355

* Truck shipments are incomplete.

† Includes satsumas and tangerines.

‡ Year as follows: California, from November 1 to October 31; all other states, from September 1 to August 31.

§ Approximately 462 California boxes to a car and 400 boxes to a car for other states.

¶ Total includes 3 cars from Georgia.

‖ Preliminary.

Sources of data:

1920-21 to 1930-31: Edwards, A. C. Statistics relating to the orange industry 1935-36. Issued by U. S. Dept. Agr. Bur. Agr. Econ. Foreign Agricultural Service Division. p. 17. May, 1936. (Mimeo.)

1931-32 to 1936-37: United States Department of Agriculture Bureau of Agricultural Economics. Car-lot shipments of fruits and vegetables by commodities, states and months. Annual summaries. (Mimeo.)

Seasonal Variation in Total United States Shipments.—A marked change has taken place in recent years in the seasonal variation of United States orange shipments. As the quantity of oranges marketed has increased, the flow of United States shipments has been spread out more evenly throughout the year, as illustrated in figure 7. From 1922–23 to 1926–27, an average of 67.5 per cent of the shipments occurred in the months November through April; but in the five years 1931–32—1935–36, this percentage declined to 60.3 per cent of the annual total. In both periods, December was the month of heaviest United States shipments, but during the latter period, March had practically the same percentage as December. The distribution of shipments throughout 1935–36 remained very similar to that of the average for 1931–32 to 1935–36, which is some evidence that the seasonal variation of shipments is not subject to great changes from year to year. Orange shipments decline from May to August and usually remain lowest during the months of August, September, and October, but even the latter months have shown a pronounced increase in their proportion of total annual shipments.

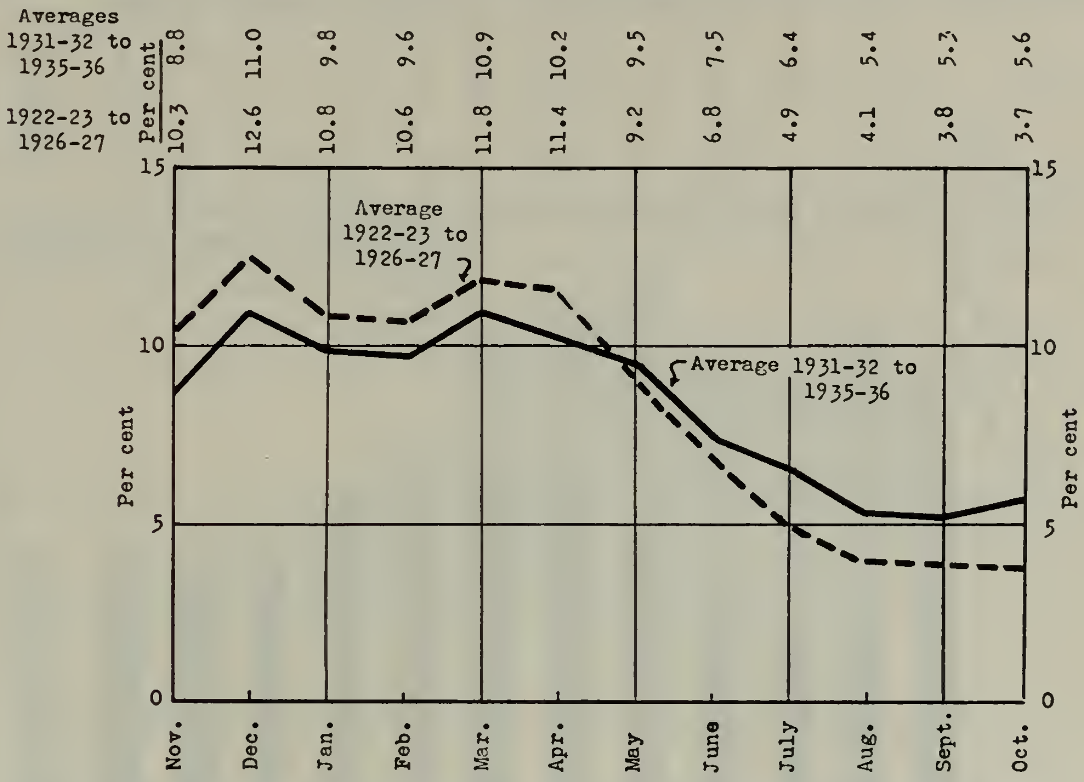

Fig. 7.—Percentage of total shipments of United States oranges shipped by months, averages 1922–23 to 1926–27 and 1931–32 to 1935–36.

Source of data: United States Department of Agriculture Bureau of Agricultural Economics. Car-lot shipments of fruits and vegetables by commodities, states and months. Annual summaries. (Mimeo.)

Seasonal Variation in California and Florida Shipments.—As shown in figure 8, California ships oranges in every month, but its heaviest shipments have been in May during 1931–32 to 1935–36. The marked increase in California summer-orange production in recent years has led to a more even flow of California shipments throughout the year. During 1922–23—1926–27, the peak in California shipments occurred in April with 12.1 per cent of the annual total, and a low point of 4.4 per cent took place in October; in the years 1931–32—1935–36, the largest monthly shipments (May) were 10.5 per cent and the smallest monthly shipments (January) were 6.3 per cent of the annual total.

With the growth of late-orange production, Florida shipments have also become heavier in the latter part of its season. From 1922–23 to 1926–27, only 29 per cent of total Florida shipments came after February, and the season practically ended in June. In the years 1931–32 to

1935–36, approximately 36 per cent came after February and the shipping season was extended into July. The result of this was to reduce California predominance in the market during the spring and early summer months. However, an increase in the California proportion of total orange shipments has occurred in October and November.

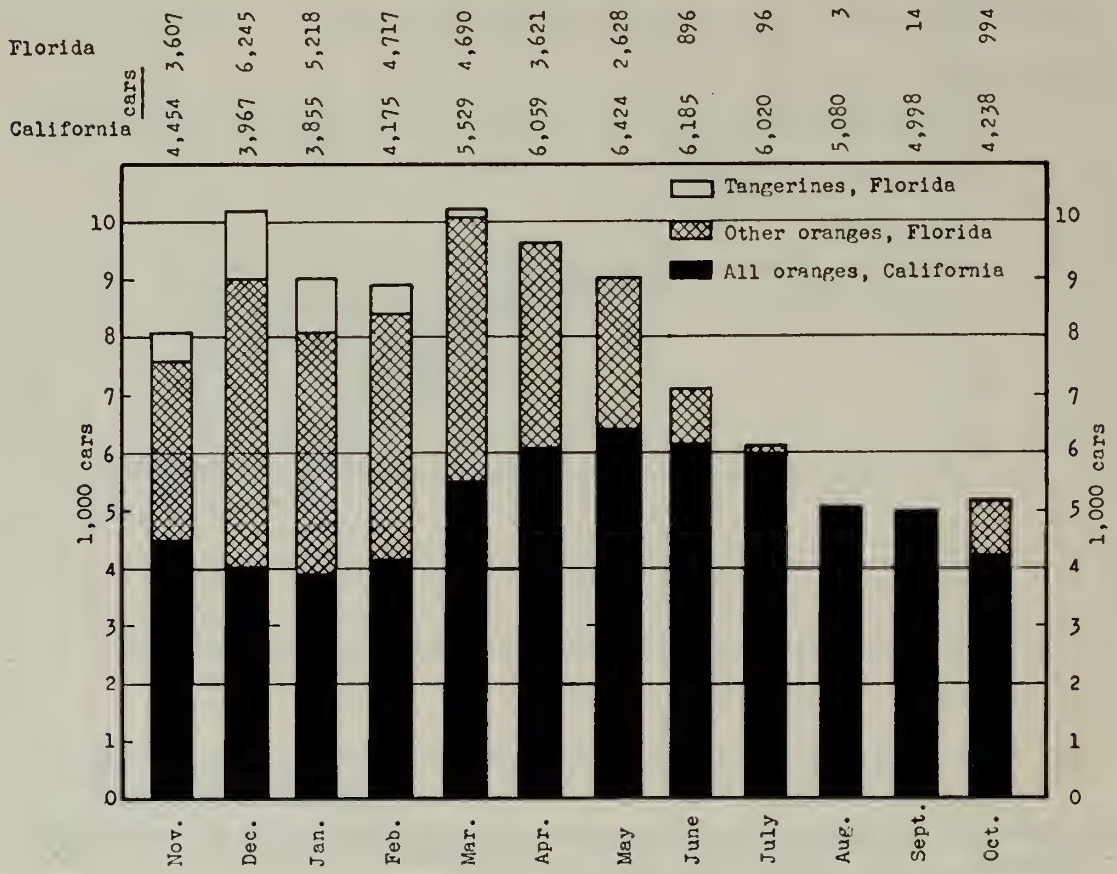

Fig. 8.—Monthly carlot shipments of oranges, California and Florida, average 1931–32 to 1935–36.

Source of data: United States Department of Agriculture Bureau of Agricultural Economics. Car-lot shipments of fruits and vegetables by commodities, states and months. Annual summaries. (Mimeo.)

For both Florida and California, the six months' shipments, May through October, have grown relatively more in recent years than those of the winter season. From 1923 to 1927 summer shipments from Florida averaged 8 per cent of the annual total; by the years 1932–1936, however, they were 14 per cent.

Winter and Summer Shipments from California.—California orange shipments in the months of November through April are mostly of the Washington Navel variety. A few of the shipments are Valencias, such miscellaneous varieties as Mediterranean Sweets, Bloods, St. Michaels, and seedlings and tangerines. Those of the summer season, May through October, are almost entirely Valencia oranges, except for a few navels from southern California in May and June. The total annual shipments in the winter and summer seasons from 1920–21 to the present are illustrated in figure 9, and it is clear that summer shipments have been increasing much faster than winter shipments. During the period 1911–12—1915–16, winter shipments were almost three times as large as those in the summer; but within the last few years summer-orange shipments have risen to the extent that they are consistently larger than winter-orange shipments. In fact, during 1931–32—1935–36, summer shipments averaged 16,807,000 boxes, or 2,439,000 boxes more than those in the corresponding winter seasons.

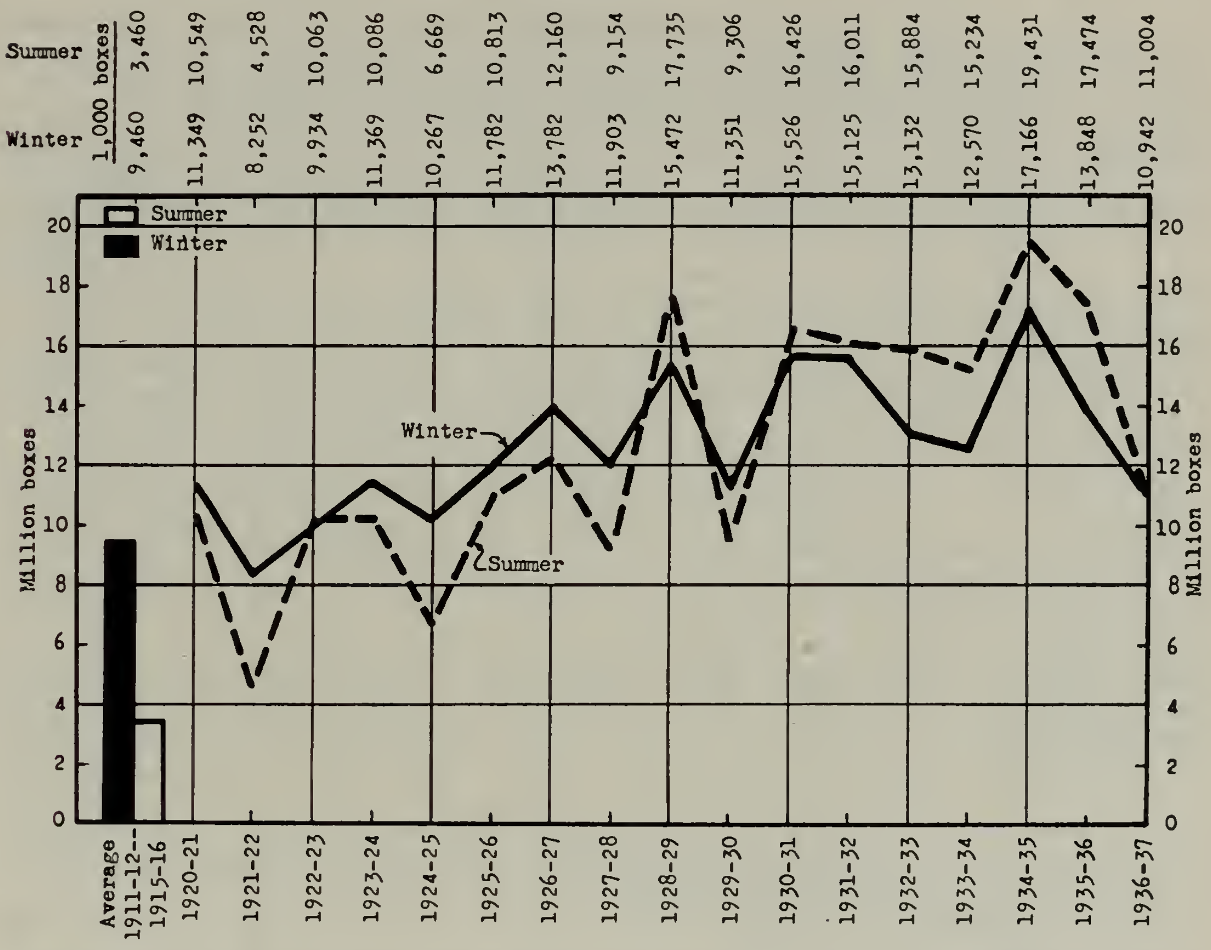

Fig. 9.—California shipments of winter and summer oranges, average 1911–12 to 1915–16, and annually 1920–21 to 1936–37.

Annual data from tables 25 and 26; average 1911–12 to 1915–16 from: Wellman, H. R., and E. W. Braun. Oranges. Series on California crops and prices. California Agr. Exp. Sta. Bul. **457**:58. August, 1928.

This marked shift in the California orange industry from a predominance of winter oranges twenty years ago to a majority of summer oranges at present will probably remain unchanged for several years in the future. The present acreage situation (fig. 1) indicates that most of the increase in California orange shipments will come during the summer season.

Shipments of winter and of summer oranges given in figure 9 fluctuate together. This is what one would expect; for changes in yield are largely due to changes in climatic influences, and as shown in figure 5 (p. 10), the main producing districts of navels and Valencias are close enough to have similar important climatic changes, and, in addition, some of the principal districts produce both varieties.

TABLE 3

California Carlot Shipments of Oranges by Districts and Counties; Three- or Four-Year Averages from 1922–23 to 1935–36*

District and county	Average 1922-23 to 1924-25		Average 1925-26 to 1928-29		Average 1929-30 to 1932-33		Average 1933-34 to 1935-36	
	Cars	Per cent	Cars	Per cent	Cars	Per cent	Cars	Per cent
Southern district:								
Los Angeles	11,497	27.0	12,928	24.3	13,695	24.3	14,404	23.3
Orange	8,897	20.9	12,941	24.3	14,197	25.2	15,456	25.1
Riverside	4,167	9.8	5,373	10.1	4,797	8.5	4,865	7.9
San Bernardino	8,730	20.5	10,567	19.8	9,275	16.4	9,240	15.0
San Diego	231	0.6	324	0.6	547	1.0	970	1.6
Ventura	1,251	2.9	1,777	3.3	2,228	3.9	3,285	5.3
Others	9	....	53	0.1	79	0.1	37	....
Total southern district	34,782	81.7	43,963	82.5	44,818	79.4	48,257	78.2
Imperial Valley	......	....	......	....	1	....	12	....
Central district	7,304	17.2	8,781	16.5	8,635	15.3	9,162	14.9
Northern district	477	1.1	526	1.0	480	0.9	77	0.1
Boat shipments†	......	....	......	....	2,484	4.4	2,841	4.6
Truck shipments‡§	......	....	......	....	......	....	1,322	2.2
Total California	42,563	100.0	53,270¶	100.0	56,418	100.0	61,671¶	100.0

* Marketing year, November through October.

† Boat shipments from trucks only.

‡ Incomplete.

§ Interstate truck shipments only.

¶ The average for 1925-26 to 1928-29 has been revised to 53,255 cars, and for 1933-34 to 1935-36 to 62,348 cars as shown in table 2.

Sources of data:

1922-23 to 1926-27: Wellman, H. R., and E. W. Braun. Oranges. Series on California crops and prices. California Agr. Exp. Sta. Bul. **457**:58. August, 1928.

1927-28 to 1934-35: United States Department of Agriculture Bureau of Agricultural Economics. Summary of carlot shipments of important fruits and vegetables in Califorina, Arizona, and Nevada. Annual issues. (Mimeo.)

1935-36: Federal-State Market News Service. Summary of carlot shipments of important fruits and vegetables in California. Monthly issues. (Mimeo.)

California Annual Shipments by Districts.—The districts of origin for California orange shipments are given in table 3, and a study of these shipment figures makes evident the predominance of the southern California counties. Even though the percentage of total rail shipments labeled as from this district has dropped slightly since 1922–23—1924–25, this is probably made up by the increase in truck shipments in southern California during the past twelve years. The individual counties of Orange, San Diego, and Ventura have not only increased the actual number of cars shipped, but they now furnish a larger proportion of the total than they did about twelve years ago; much of this increase has been a result of the plantings of Valencia trees during the twenties. All of the counties had more actual shipments during 1933–34—1935–36 than during 1922–23—1924–25, but those producing mainly navels have had a smaller proportion of the total in late years, because of the greater increase in shipments in the Valencia-producing districts.

A similar situation has existed in the central California district, where slightly more than two-thirds of the orange acreage is planted in navels. The actual number of cars shipped was more during 1933–34—1935–36 than in the earlier period, but the percentage of total shipments was smaller.

On the basis of the figures given in table 3, the northern district represents a smaller part of the California orange industry than formerly, chiefly as a result of the freeze during the winter of 1932–33.

It may be mentioned that small quantities of oranges have been marketed from the Imperial Valley during recent seasons.

Seasonal Variation in California Shipments by Districts.—Four main orange-producing areas in California may be distinguished in figure 5 (p. 10): the Sacramento Valley, central California, southern California, and the desert-valley area (Coachella Valley and Imperial Valley, with which the Arizona orange-growing area may be linked). Shipments from the Sacramento Valley and the desert-valley area appear negligible in comparison with those of central and southern California.

Because these areas differ in climate, their shipping periods differ also, as shown in figure 10. In 1934–35, for example, movement[9] of navel oranges from the Sacramento Valley was heaviest in November, and by January their season was over. Navel movement from central California likewise was heaviest in November, and thereafter tapered off until it ceased in March. The navel shipments from central California are heaviest around December 1 so that just a slight change in the season often makes December the month of heaviest shipments, as for instance in 1935–36. Desert-valley navels began going to market in November, reached a peak in December, and were out of the market by March. Southern California also started moving navels in November; however, the quantities were small as compared with the seasonal total for that area, and they gradually increased until they reached 3,200,000 boxes in March. April also witnessed heavy movements from this area, but a sharp drop took place in May and June.

By this time Valencia oranges were moving in full swing. The earliest marketing of this variety began in the desert-valley area in February and reached a peak for that area in March, and then steadily decreased and was practically finished by May. Central-California Valencias also began moving in small volume in February and were at a peak of about 1,550,000 boxes in May. An appreciable volume was marketed in June, but little was left for the following months. Beginning with a few shipments in March and more in April, the Valencia season in southern California came latest of all; then from May to October between 2,700,000 and 4,600,000 boxes went to market each month, with the maximum amount going in July. Some movement of Valencias from this area occurred in November and December in competition with the succeeding year's navels.[10]

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[9] "Movement" includes ordinary shipments, oranges converted to by-products, oranges given to charity, and oranges dumped.

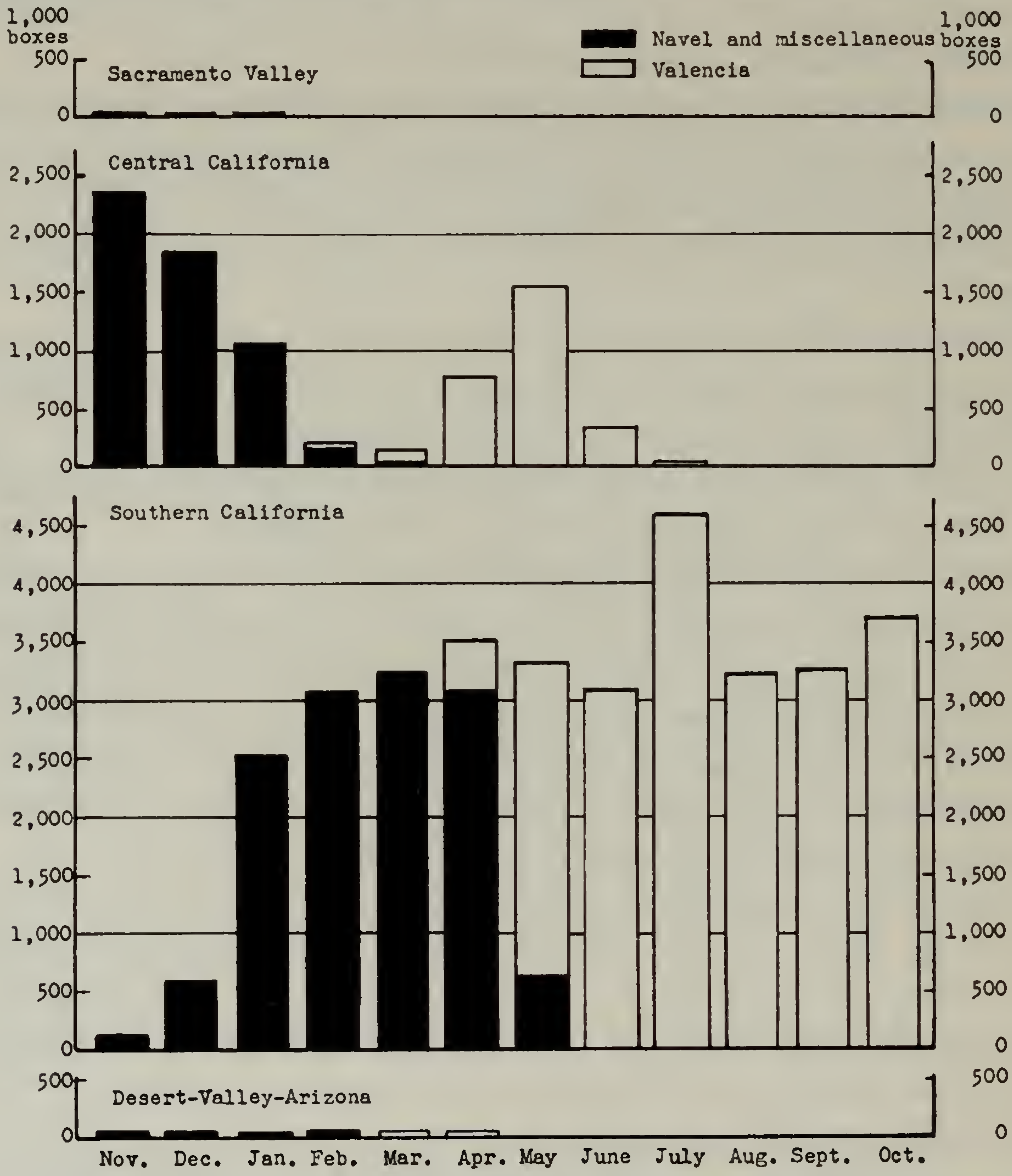

Fig. 10.—California orange movement by shipping areas and by months, crop year 1934–35.

Source of data: California-Arizona Orange Grapefruit Agency, Los Angeles.

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[10] The small quantity of 2,684 boxes of Valencias also moved from the Sacramento Valley in May.

This in brief is the seasonal variation in California orange movement as between the main geographical areas within the state. Marked variation as to the time of movement also occurs in localities within some of these areas. This situation gives rise to perplexing problems in the administration of control programs (see p. 39).

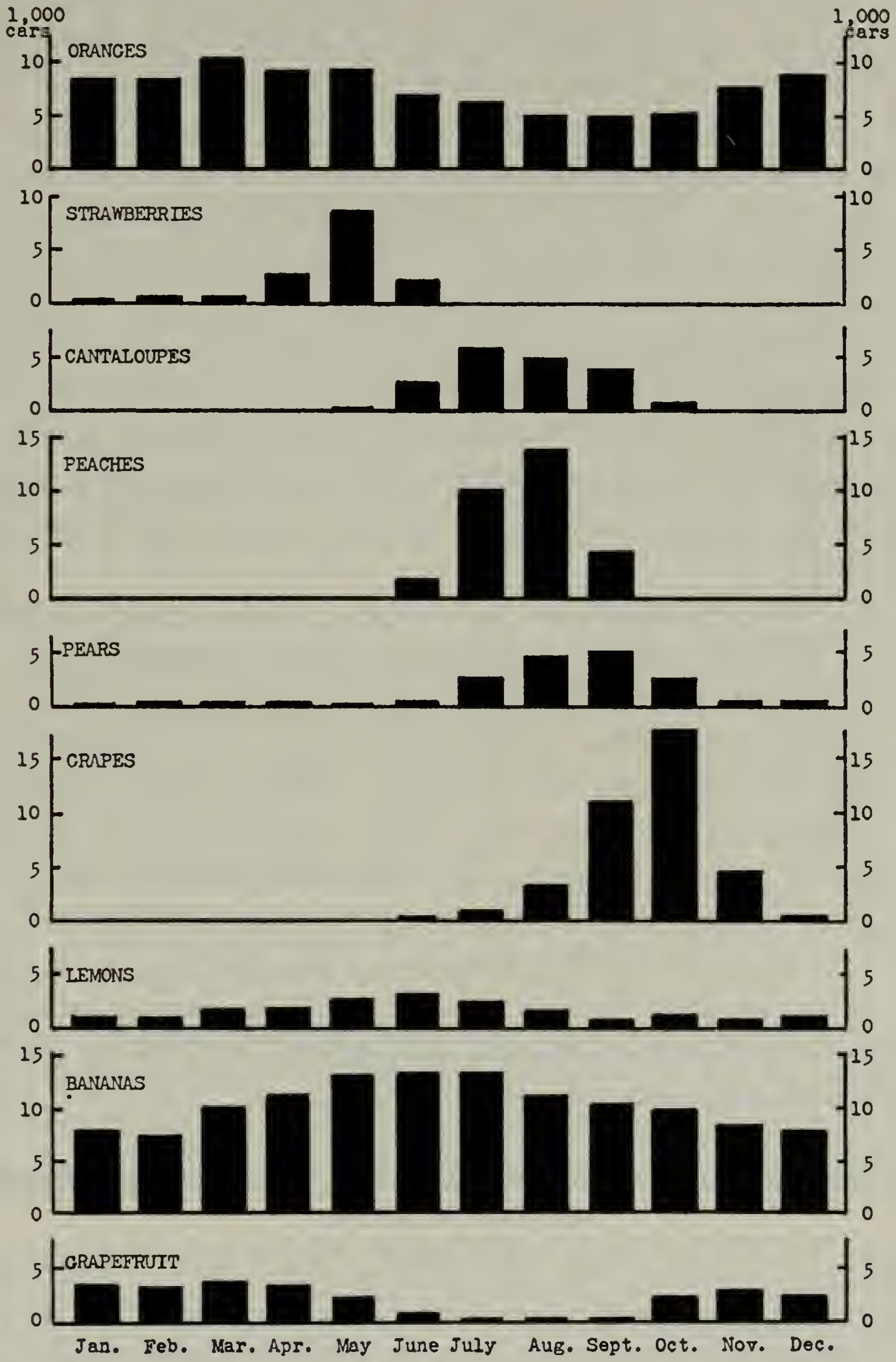

Fig. 11.—Monthly carlot shipments of certain fresh fruits in the United States, average 1931–1935.

Source of data: United States Department of Agriculture Bureau of Agricultural Economics. Car-lot shipments of fruits and vegetables by commodities, states and months. Annual summaries. (Mimeo.)

Seasonal Shipments of Competing Fresh Fruits.—The shipping seasons for the more important fresh fruits competitive with oranges are given in figure 11, as an average for the years 1931–1935. Apples,[11] lemons, bananas, and grapefruit are competing with oranges every month of the year, and pears are in the market to some extent all year. Strawberries, cantaloupes, peaches, and grapes have shipping seasons of around six months in length.

The bulk of these fruits come on the market at the same time as summer oranges; with the single exception of grapefruit, each one is shipped mainly during the period of May through October. More specifically, 70 per cent of the strawberries, 99 per cent of the cantaloupes, all of the peaches, 89 per cent of the pears, 87 per cent of the grapes, 61 per cent of the lemons, 57 per cent of the bananas, and 25 per cent of the grapefruit shipments occur during these months. In addition, early apples are available in the summer, and part of the main apple crop is marketed in the early fall.

Although winter oranges do not compete with so many of the fresh fruits, they do meet strong competition from grapefruit, and the increased canning of some fruits has enabled them to extend their market into the winter season. The proportions of the annual shipments that occur during November through April for different fresh fruits are as follows: 75 per cent for grapefruit, 39 per cent for lemons, 43 per cent for bananas, 11 per cent for pears, and the main apple crop. There is also a tendency for some of the traditional summer fruits to spread over into the winter months. For example, during 1931–1935, an average of 30 per cent of the strawberries and 13 per cent of the grapes were shipped in competition with winter oranges, as compared with 20 per cent of the strawberries and no grapes in 1923–1927.

ORANGE CONSUMPTION AND IMPORTANT MARKETS IN THE UNITED STATES

Consumption of Oranges[12] and Competing Fresh Fruits.—The consumption of oranges has increased phenomenally during the past fifteen years. The total consumption increased from an annual average of about 2,200 million pounds in 1923–1925 to 3,300 million pounds ten years later, or a rise in annual per-capita consumption of from 19 to 26 pounds (table 4). The significance of this large growth in the use of oranges is more clearly brought out when it is compared with the decrease in the total per-capita consumption of fourteen important fresh fruits, including oranges, from 163 pounds per annum in 1923–1925 to 149 pounds per annum during 1933–1935: It should be pointed out that if apples are eliminated, the per-capita consumption of the other thirteen fruits was practically the same in each of the two periods. The total consumption of all these fruits was a little more at the end of this ten-year period than at the beginning, but it did not keep pace with population growth. When the thirteen fresh fruits other than oranges are considered, the per-capita consumption dropped from 144 pounds at the beginning of this period to 123 pounds at the end. With the exception of citrus fruits, the consumption of each of these either stayed about the same or decreased, but it appears that the greater consumption of oranges was largely at the expense of apples. Part of the decrease (or lack of increase) in fresh-fruit consumption may have been due to the increased purchase of canned fruits by the housewife. During this same ten-year period the

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[11] Shipment figures for apples are not given in figure 11, because they do not represent the flow into consumption since a large part of the apple crop is stored.

[12] The section on trend of demand has a more detailed analysis of consumption in conjunction with prices.

TABLE 4

APPARENT UNITED STATES CONSUMPTION* OF IMPORTANT FRESH FRUITS, AVERAGES 1923–1925 AND 1933–1935

	Average 1923-1925		Average 1933-1935	
	Total	Per capita	Total	Per capita
	million lbs.	*pounds*	*million lbs.*	*pounds*
Apples	6,819	60.2	5,858	46.3
Apricots	34	0.3	32	0.2
Bananas	2,098	18.5	2,156	17.1
Cantaloupes	803	7.1	747	5.9
Cherries	90	0.8	112	0.9
Grapes	1,114	9.8	1,109	8.8
Grapefruit	680	6.0	871	6.9
Lemons	424	3.7	458	3.6
Oranges	2,191	19.4	3,309	26.2
Peaches	1,624	14.3	1,465	11.6
Pears	672	5.9	611	4.8
Plums and fresh prunes	224	2.0	203	1.6
Strawberries	385	3.4	391	3.1
Watermelons	1,301	11.5	1,498	11.9
Total	18,459	162.9	18,820	148.9
Total excluding oranges	16,268	143.5	15,511	122.7

* This includes fruit that may have been wasted, canned in the home, etc.

Sources of data:

Calculated from scattered data on specific fruits published by the United States Department of Agriculture, in *Yearbooks of Agriculture, Agricultural Statistics, Crops and Markets, General Crop Reports, Car-Lot Shipments of Fruits and Vegetables by Commodities, States and Months*, and *Truck Crop News;* by the United States Department of Commerce, in *Monthly Summary of Foreign Commerce of the United States;* by the California State Department of Agriculture, in *California Fruit and Nut Crops;* by the United States Tariff Commission; from data in *Western Canner and Packer*, annual issues; from information supplied by the California Fruit Growers' Exchange and the Northwest Canners' Association; from estimates by S. W. Shear; and from special mimeographs.

per-capita consumption of ten important canned fruits increased approximately 3 pounds per annum.

Although these figures are of necessity only rough approximations to the exact actual consumption figures for the United States, they do serve to remind us that even though the uses of many industrial products seem to have great possibilities of expansion, the human stomach cannot consume greatly increased quantities of food. If people for one reason or another eat many more oranges, they are likely to eat less of other things, perhaps competing fruits.

This increased consumption has, of course, been mainly due to the strong appeal that oranges have to the consumer. Lower prices during recent years have no doubt had an effect, but orange consumption increased even during the decade after the War when prices were not declining. A few of the more important factors, in addition to palatableness, that have contributed to this greater use of oranges are:

1. Dieticians, doctors, nurses, social-service workers, home-economics teachers, home demonstration agents, and other teachers have encouraged the consumption of oranges in their efforts to improve the daily diet of most people. Mothers now usually see to it that babies regularly have their orange juice or a product with similar food value.

2. This education in the food value of oranges (that is, free advertising) has been accompanied by efficient national advertising on the part of the California Fruit Growers' Exchange and other marketing agencies. They have, of course, wisely kept the healthful properties of the orange before the public.

3. The development of more uniform and better-quality fruit has also increased the use of oranges. This has been accomplished largely through improvements in the methods of handling oranges and the standardization of grades.

4. The convenience of consuming oranges in the form of juice has been recognized more widely during the past two decades and this is now the most popular form in which oranges are used. Within the last five years, however, this form of consumption has spread very rapidly to competing products.

5. The more uniform supply of oranges throughout the year and the wide distribution of oranges in every part of the United States have helped make this larger consumption possible. Oranges are available in practically all districts in this country, and the increased production of Valencia oranges in California now enables the industry to supply over two-thirds as many fresh oranges during the summer season as the winter season.

Important Orange Markets in the United States.—It is clear from a study of table 5 that west of the Mississippi River, California oranges have met with little direct competition during the periods considered; however, Florida oranges, as well as those from California, are unloaded in cities along the Mississippi River and in Chicago. As one proceeds south and east from these points, the proportion of oranges that is from California generally grows smaller and smaller. The advantage of the proximity of Florida to the large eastern cities is evident, and California oranges are consumed in the southeastern states only during the season when Florida oranges are off the market.

The sixty-four cities listed in table 5 received about 75 per cent of the total United States orange shipments during the period, 1934–1936. New York City unloads alone represented 18 per cent of the total United States shipments, while the corresponding figure for Chicago, the second largest orange market, was a little over 6 per cent. During 1934–1936, California furnished 45 per cent of the unloads in New York, which was a little less than its 50 per cent in 1924–1926; however, for all thirty-four cities for which figures in both periods are given, the California proportion of the total unloads remained about the same. Thirteen of the cities received over 1,000 cars of oranges annually, and of these New York, Chicago, Boston, and Philadelphia each took over 5,000 cars. During the years 1934–1936, approximately 36 per cent of the total United States carlot shipments came into these four markets. With the exception of Washington, Birmingham, and Toledo, the unloads were larger in all cities during 1934–1936 than in 1924–1926, and most large cities seemed to receive about the same proportion of total United States shipments in each period.

In order to present an analysis by sections of the United States, these cities have been grouped into large geographical areas.[13] The cities in the north-Atlantic states received one-half of these total unloads, 51 per cent of which were from California. A little more than one-fourth of the total went into cities of the north-central group of states, where California furnished the high proportion of 76 per cent. Naturally California furnished over 99 per cent of the oranges taken by the cities in the eleven

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[13] North-Atlantic states include Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania. North-central states include Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas. The western states include Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California. The south-central states include Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas. The south-Atlantic states include Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, and Florida; for convenience, the District of Columbia has been included in this group.

TABLE 5

CARLOT UNLOADS OF ORANGES IN SELECTED CITIES OF THE UNITED STATES BY STATES OF ORIGIN,* AVERAGES 1924–1926 AND 1934–1936

Division and city	Average 1924-1926†			Average 1934-1936		
	California	Florida	Total	California	Florida	Total
	cars	*cars*	*cars*	*cars*	*cars*	*cars*
North Atlantic states:						
New York	5,984	5,180	12,054‡	8,135	9,768	17,948‡
Boston	2,288	1,637	3,939	3,361	2,610	5,974
Philadelphia	1,478	2,164	3,668‡	2,622	3,206	5,829
Pittsburgh	889	738	1,627	1,774	647	2,432
Buffalo	593	197	800	709	353	1,063
Providence	212	260	476	310	349	659
Hartford	......	......	......	314	339	653
Rochester	......	......	......	443	157	601
Syracuse	......	......	......	357	159	517
Springfield, Mass.	......	......	......	284	196	480
Albany	......	......	......	372	64	436
New Haven	......	......	......	168	202	370
Portland, Maine	......	......	......	236	56	293
Newark	30	93	123	86	186	272
Bridgeport	......	......	......	133	99	232
Worcester	......	......	......	26	5	31
Total	11,474	10,269	22,687	19,330	18,396	37,790
North central states:						
Chicago	2,964	937	3,948	4,497	1,421	6,068
Detroit	1,413	181	1,594	2,130	560	2,727
Cleveland	972	535	1,533	1,432	654	2,096
St. Louis	861	378	1,250	1,383	277	1,720
Cincinnati	321	629	956	883	730	1,621
Milwaukee	563	48	612	784	117	916
Minneapolis	813	5	819	848	28	880
Kansas City	453	9	464	726	78	831
Indianapolis	293	200	502	373	174	557
Columbus	294	191	494	349	173	525
St. Paul	281	2	283	433	12	446
Omaha	285	1	287	394	30	442
Grand Rapids	......	......	......	322	76	399
Toledo	364	54	420	326	46	377
Des Moines	......	......	......	315	45	364
Peoria	......	......	......	280	16	297
Duluth	......	......	......	227	8	238
Youngstown	......	......	......	183	49	232
Sioux City	......	......	......	221	3	228
Dayton	......	......	......	73	68	141
Evansville	......	......	......	67	70	138
Terre Haute	......	......	......	32	10	43
Akron	......	......	......	31	11	42
Total	9,877	3,170	13,162	16,309	4,656	21,328

* Unloads from other states and imports were insufficient to justify a separate column.

† Unloads reported in only 34 cities during this period.

‡ Includes imports.

TABLE 5—(*Concluded*)

Division and city	Average 1924-1926†			Average 1934-1936		
	California	Florida	Total	California	Florida	Total
	cars	*cars*	*cars*	*cars*	*cars*	*cars*
Western states:						
Los Angeles	......	......	......	3,922	0	3,922
San Francisco	......	......	......	1,338	0	1,338
Seattle	406	2	408	889	0	891
Portland, Oregon	420	2	422	745	0	751‡
Denver	356	4	361	632	3	645
Salt Lake City	232	0	232	306	0	306
Spokane	130	0	131	178	0	179‡
Total	1,544	8	1,554	8,010	3	8,032
South central states:						
New Orleans	113	172	287	176	485	679
Memphis	173	257	434	201	296	509
Louisville	168	236	406	176	255	432
Dallas	249	24	277	350	22	417
Houston	......	......	......	328	10	351
Nashville	......	......	......	72	252	324
El Paso	......	......	......	316	0	323
Oklahoma City	......	......	......	268	14	293
Birmingham	68	294	366	93	170	263
San Antonio	......	......	......	174	6	191
Fort Worth	116	9	126	120	5	142
Shreveport	......	......	......	77	9	88
Lexington	......	......	......	23	46	69
Total	887	992	1,896	2,374	1,570	4,081
South Atlantic states:						
Baltimore	371	864	1,254‡	653	821	1,475
Atlanta	49	480	529	99	821	920
Washington	192	389	584	377	195	572
Richmond	......	......	......	76	186	262
Norfolk	......	......	......	57	96	153
Total	612	1,733	2,367	1,262	2,119	3,382
Total 64 cities	24,394	16,172	41,666‡	47,285	26,744	74,613‡

* Unloads from other states and imports were insufficient to justify a separate column.

† Unloads reported in only 34 cities during this period.

‡ Includes imports.

Source of data:

United States Department of Agriculture Bureau of Agricultural Economics. Unloads in 34 and 66 cities by states of origin. Annual issues. (Mimeo.)

western states, which accounted for 11 per cent of the total. Each of the south-central and south-Atlantic groups of states has only about 5 per cent of the total unloads in the sixty-four cities, but it should be pointed out that no cities are listed from Florida. In the former group, 58 per cent of the oranges came from California and in the latter 37 per cent.

Florida usually sends carlot shipments of oranges to between 400 and 550 cities and towns according to the season. California has a somewhat wider distribution, ranging from 600 to 750 cities and towns in the United States, the District of Columbia, and Canada.

Orange-Juice Products and By-Products.—The availability of large supplies of oranges at low prices during recent years has given an added stimulus to the development and use of orange-juice products and by-products. As the long-time outlook is for a continuation of the upward trend of world orange supplies, it is likely that more and more oranges will be diverted into these channels. The more important juice products are the canned orange juice, dairy orange base, bottler's bases, and miscellaneous juice products; and the main by-products are pectin, oil, and orange meal. During the 1934–35 season 1,500 carloads, or 4 per cent, of the California navel and miscellaneous-orange shipments, and about 6,500 carloads, or 15 per cent, of the Valencia-orange movement went into these various products. In 1935–36, however, the amounts going into these products dropped to about 1,100 carloads of navels and miscellaneous varieties and 2,700 carloads of Valencias. The *Annual Report of the California Fruit Growers' Exchange*[14] states that 6,500 cars of their oranges were used in the production of various kinds of juices during 1937 and that 80,000 tons of oranges of all varieties were processed.

The manufacture of canned orange juice is now increasing very rapidly; it appears likely to continue as the principal outlet for those oranges that are not consumed in the fresh state. The main canned-juice competitors are tomato, grapefruit, and pineapple juices. The entire pack of the California orange juice is of the summer crop, primarily the Valencia variety, and the product is very sweet in taste and a deep orange in color. In 1935, approximately 27,000 tons, or 4 per cent, of the California commercial summer-orange supply was manufactured into about 400,000 cases of canned orange juice (on the basis of 48 cans No. 1 Talls per case). Although data for earlier years are unreliable, H. J. Stover[15] considers that the volume of orange juice canned in California in 1934 did not exceed 40 per cent of the 1935 pack and that the packs of earlier years were of inconsequential commercial importance. Trade estimates indicate that the 1936 pack was approximately 25 per cent larger than that of 1935, and that the 1937 pack continued the increase.

The orange-juice pack in Florida has been increasing during recent years but has remained much less than that of California. From 1929–30 to 1933–34 the output of Florida canned orange juice fluctuated between 36,000 and 61,000 cases (on the basis of 24 No. 2 cans per case); however, the 1934–35 pack was 241,000 cases, a quantity five times as large as the average annual pack for the preceding five seasons. The estimate for the 1935–36 season shows a drop to around 162,000 cases.

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[14] California Fruit Growers' Exchange. Annual report of the general manager for the year ended October 31, 1937. p. 33. 1937.

[15] Much of this discussion of juice products is taken from: Stover, H. J. The manufacture and use of California canned orange juice. Univ. California Giannini Foundation Mimeo. Rept. 45:1–27. 1936.

The dairy orange base, or "dairy orange juice," as the trade has come to call it, derives its name from the fact that it is marketed through milk-distributing organizations. Although the exact make-up of the product varies with the concern manufacturing it, the dairy orange base is usually either a pure, concentrated orange juice or a concentrated orange juice blended with lemon juice and certified color to standardize the color and flavor. About 12,600 tons of oranges were used for this product in California in 1935. This dairy orange base has had a rapid rise to popularity and its market limitations are not yet evident.

The bottler's bases and miscellaneous juice products are manufactured for use in carbonated beverages, ice cream, bakery products, and the like. A survey of the manufacturers of orange by-products in California in February, 1936, indicated that nearly 36,000 tons of oranges, or 3 per cent of the California commercial orange production, were used in the manufacture of all orange concentrates (including dairy orange base) in 1935.

Pectin is a jellying principle present mainly in the white portion of the orange peel. It is used largely by the preserve trade in making jellies, jams, and preserves, and to a lesser extent by meringue powder manufacturers and as an emulsifying agent for emulsifying oils. As the market is very limited and the competition of the apple-pectin industry is keen, only a small part of the available orange pectin is recovered and used.

Orange oil is an essential oil prepared from the peel. It is used mainly for flavoring food products and to some extent in drugs and cosmetics. The market for oil is also small.

Dried orange meal, a dairy feed, is the dried, coarsely ground peels and pulp of the fruit left after the oil and juice have been removed. The Exchange Orange Products Company produced 917 tons in 1934–35, as compared with 152 tons in 1933–34. The manufacture of this product not only saves money which otherwise would be spent in disposing of the pulp, but also brings in a small return to growers. The market for orange meal is uncertain, however, and may be cut off entirely by a drop in other dairy-feed prices.

PRICES, INCOME, DEMAND, AND CONTROLLED MARKETING

Farm Price and Gross Farm Income from All California Oranges.—Figure 12 is shown primarily to reëmphasize the fact that it is not price but income that the grower wishes to maximize, and that price and income sometimes move in opposite directions. Actually it is net income or, more accurately, the ability of net income to buy the commodities and services which he uses that the grower would like to see reach a maximum. At present, no satisfactory data have been developed for measuring net income, but we may obtain a picture of gross farm income. In figure 12, it happens that the highest price also produced the greatest gross income, but there have been several instances when a drop in price was accompanied by more gross income. In a more detailed and penetrating study, one might more closely approach a fair measure of net income, but that is beyond the scope of this bulletin.

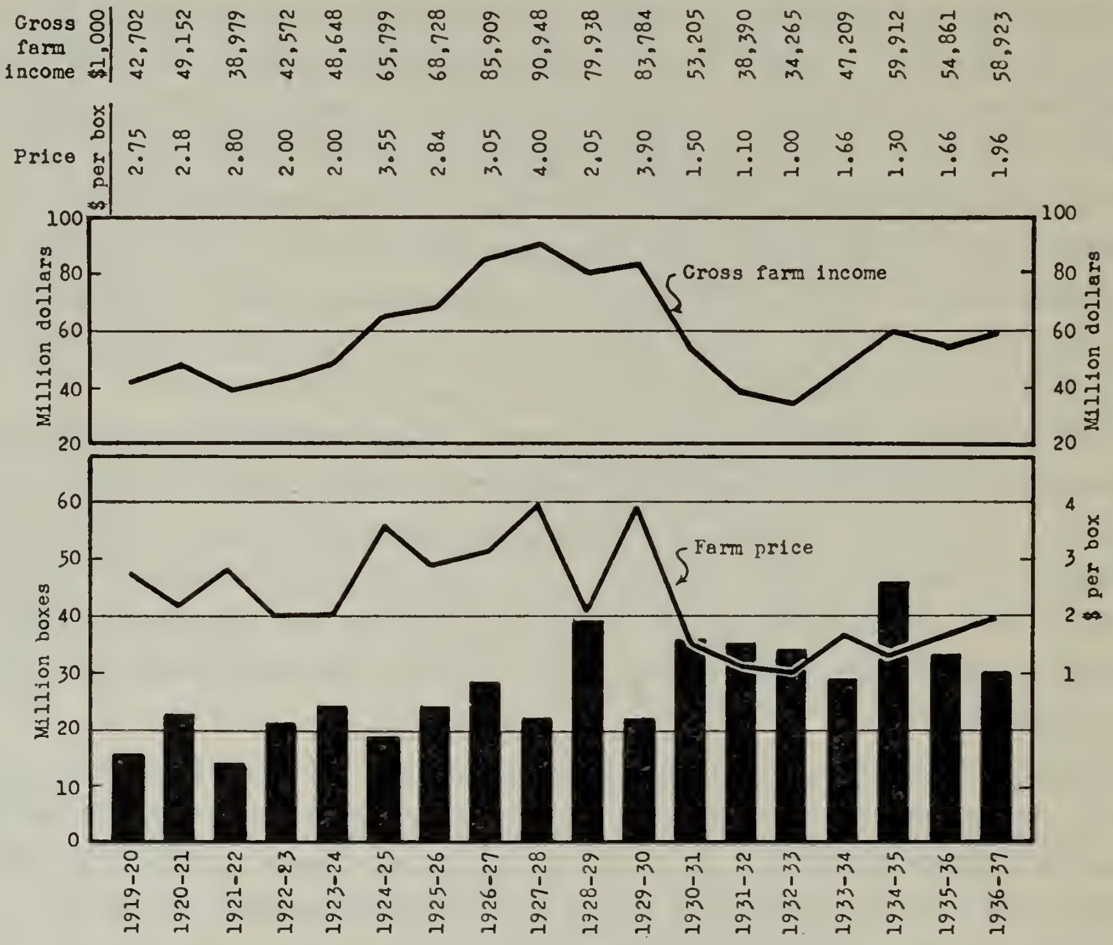

Fig. 12.—Gross farm income, farm price, and production (black bars) of all California oranges, 1919–20 to 1936–37.

Source of data: United States Department of Agriculture. Agricultural statistics 1937:155. *And:* General Crop Report, December, 1937.

F.O.B. Prices of California Summer and Winter Oranges.—It is clear from figure 13 that California summer oranges have brought a higher annual average f.o.b. price than those marketed during the winter. This appears to be due to smaller United States shipments of summer oranges and heavy consumption of orange juice in warm weather rather than any definite preference on the part of the consumer for Valencias over Washington Navels. For the few years previous to the World War, this price difference was fairly stable, but since the War it has fluctuated violently. In 1924–25, the summer orange price was $1.66 per box higher than that for winter oranges; whereas it was $0.11 per box lower in 1928–29, the only year that oranges marketed from May through October sold for less than those marketed from November to April. The years 1924–25, 1927–28, and 1929–30, when this price spread was especially large, were, as one would expect, years in which the total production of oranges was small, and the reduction in Valencia production was greater than that of Washington Navels in California. In addition, the latter had to share the market with a supply of Florida oranges not much smaller than average. This difference in prices was generally less in seasons of low prices, and particularly during the depression years. With the probable greater increase in Valencia production than in Washington Navel production in the future, it is likely that such wide

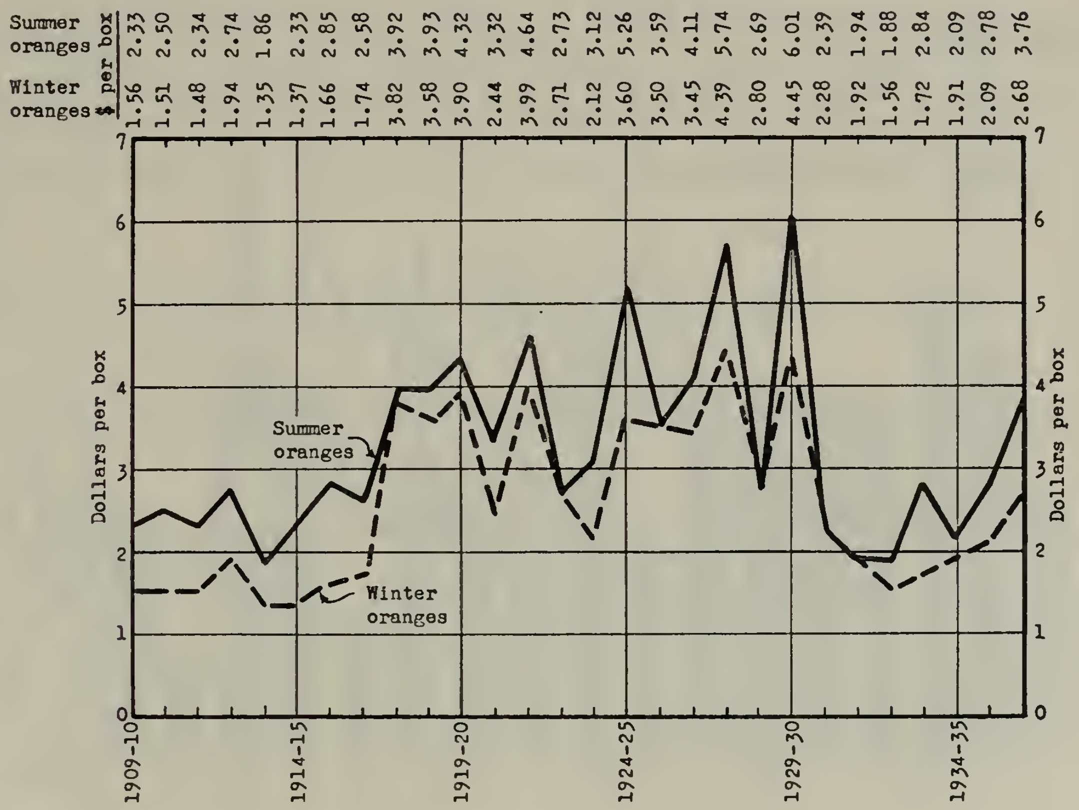

Fig. 13.—Summer- and winter-orange prices, f.o.b. California, 1909–10 to 1936–37. (Previous to 1920–21 these are quoted as Valencia and navel prices, respectively.)

Source of data: California Fruit Growers' Exchange, Los Angeles.

price differences will not occur again except in years when a frost comes at a time that is much more damaging to Valencias than to Washington Navels, or unless there is an exceptional rise in almost all prices, which usually brings wider price spreads as well as other disturbances to the general price structure.

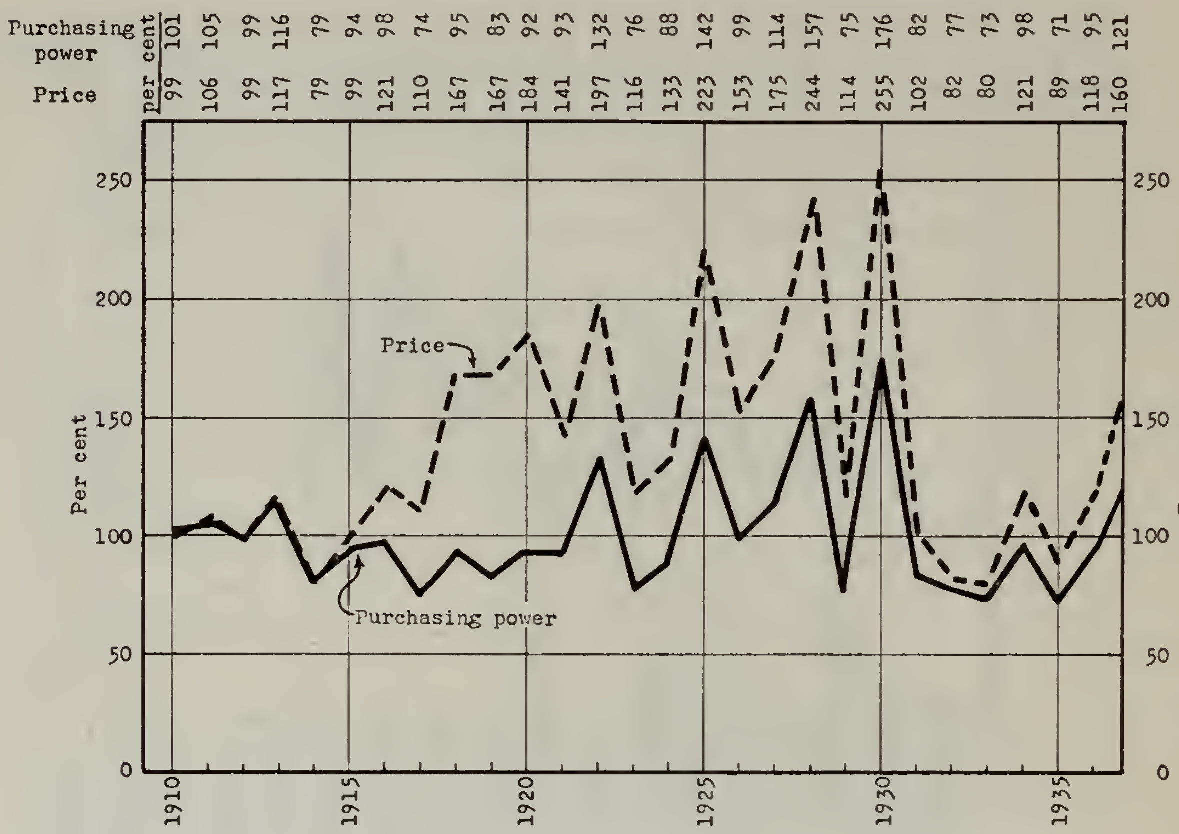

Fig. 14.—F.o.b. price and purchasing power of California summer oranges, 1910–1937 (each expressed as a percentage of its 1910–1914 average).

Calculated from the price of summer oranges as explained in text below.

F.O.B. Prices and Purchasing Power of California Oranges.—In an effort to improve on the use of price as an indicator of the well-being of the producers of different products, a measure of purchasing power has been developed. To obtain the purchasing power of summer oranges for a given season, one first expresses the price of summer oranges for that season as a percentage of the average annual price of summer oranges for the seasons 1910–1914; this percentage is then divided by an index of prices paid by farmers[16] for the same season and the result is called the "purchasing power of summer oranges." The solid line in figure 14 pictures the purchasing power of summer oranges since 1910, and the line consisting of dashes is the price expressed as a percentage of the 1910–1914 average price. These lines show that a change in the price of summer oranges from one year to the next has been accompanied by a change in purchasing power in the same direction, but usually of a smaller amount.

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[16] Published by the Bureau of Agricultural Economics.

Although prices of summer oranges soared during and immediately after the World War, the index of prices of commodities bought by the farmer evidently rose even more, inasmuch as the purchasing power of oranges was below 100. In fact, there have only been six seasons since the base period, in which the purchasing power of summer oranges has been higher than the average for the five pre-War years, and five of these have been years of particularly low shipments, as may be seen by a comparison of figures 14 and 15, the latter showing shipments and prices. As with most other commodities, summer-orange shipments and prices usually move in opposite directions from one year to the next, except during periods of extreme changes in national income or in almost all prices.

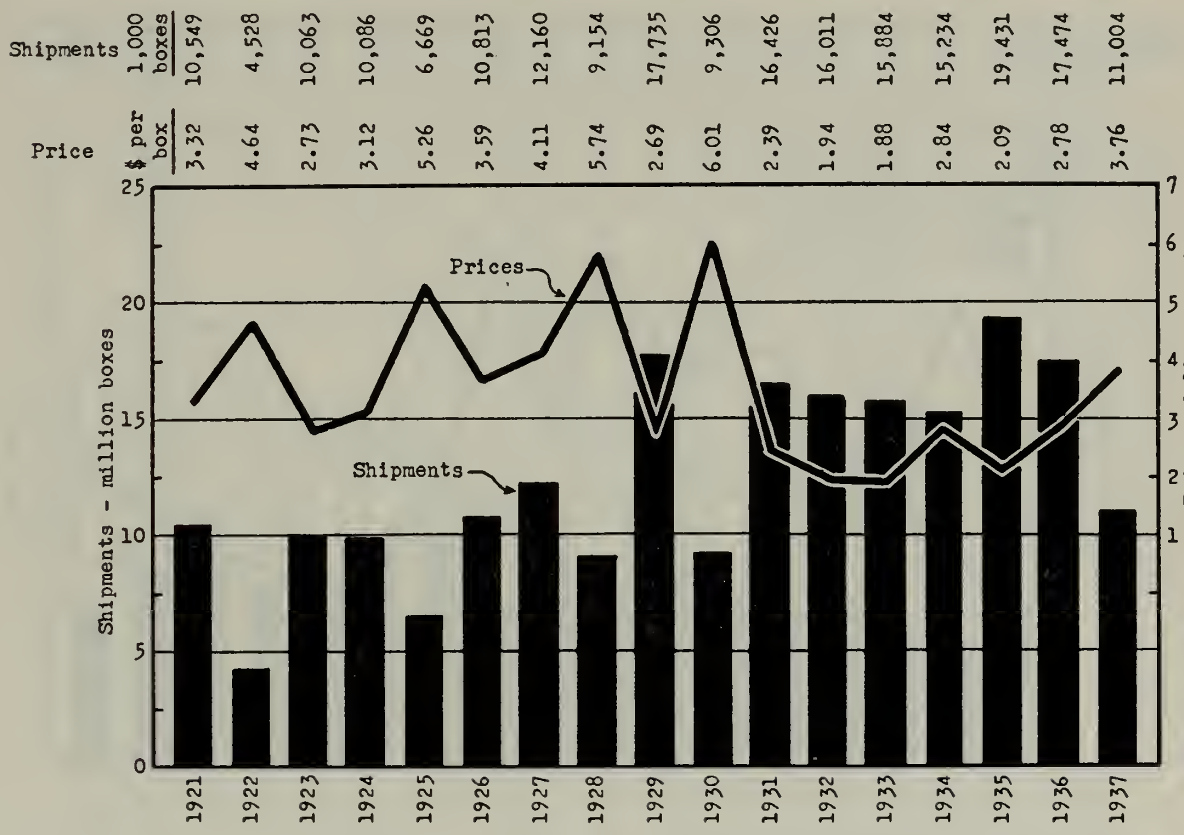
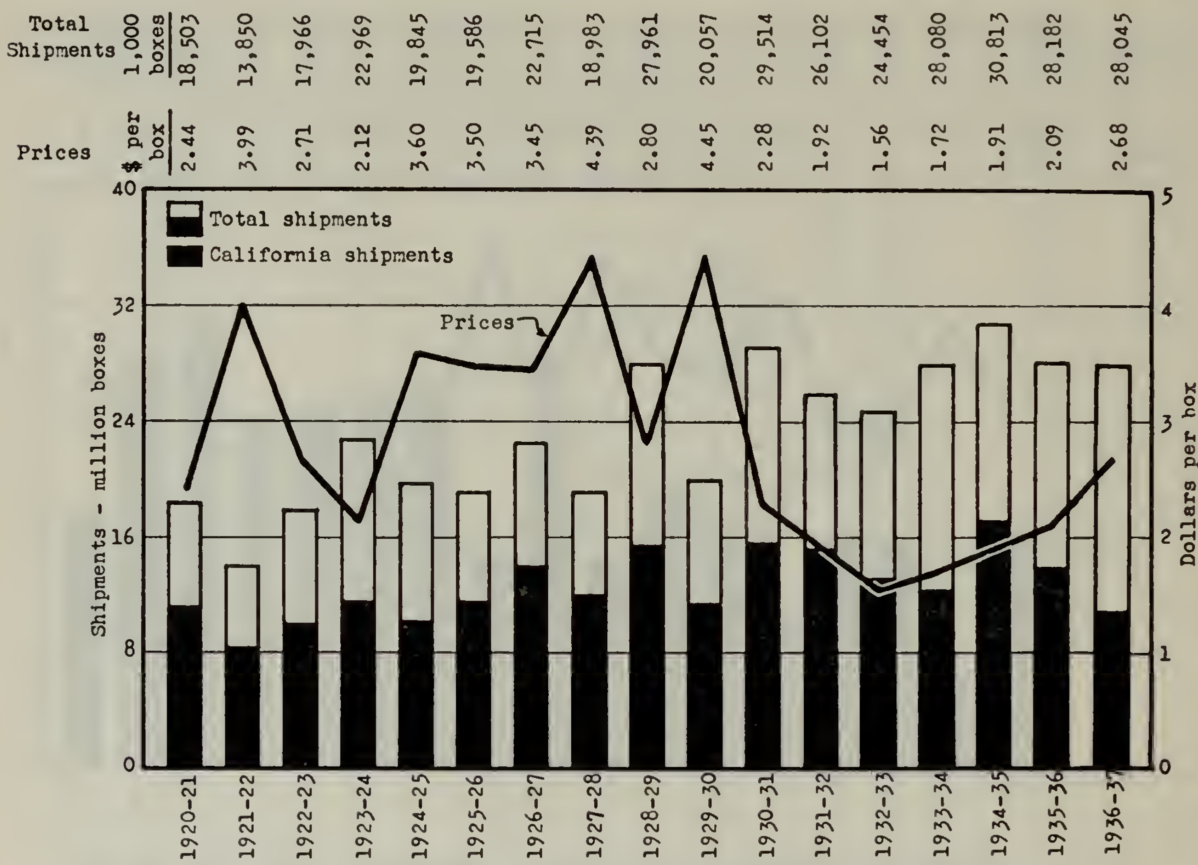


Fig. 15.—Annual average f.o.b. prices and shipments of California summer oranges, 1921–1937.

Source of data: California Fruit Growers' Exchange, Los Angeles.

Similar remarks apply also to figure 16, which gives United States shipments, California shipments, and prices for winter oranges.

In studying price and purchasing power of winter oranges as exhibited in figure 17, one observes that the same general statements may be made regarding the relation of these two curves as was made in a previous paragraph regarding summer oranges. Nevertheless, there is one striking difference, which emphasizes the care with which the concept purchasing power must be used. For the great majority of years since the World War, purchasing power of winter oranges has been above the 100 per cent mark, the average during 1909–10—1913–14; while the purchasing power of summer oranges was above this average in only six seasons. This may have the appearance of a paradox when it is recalled that the price of summer oranges was higher than that of winter oranges throughout this period. The explanation lies in the fact that prices of summer oranges were considerably higher than those of winter oranges during the base period 1909–10—1913–14, and hence even though prices of summer oranges remained higher than winter oranges in later years, they were usually not as high a *percentage of their average during the base period* as were winter oranges.



		1920-21	1921-22	1922-23	1923-24	1924-25	1925-26	1926-27	1927-28	1928-29	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37
Total Shipments	1,000 boxes	18,503	13,850	17,966	22,969	19,845	19,586	22,715	18,983	27,961	20,057	29,514	26,102	24,454	28,080	30,813	28,182	28,045
Prices	$ per box	2.44	3.99	2.71	2.12	3.60	3.50	3.45	4.39	2.80	4.45	2.28	1.92	1.56	1.72	1.91	2.09	2.68

Fig. 16.—Annual average prices, f.o.b. California, and total United States shipments of winter oranges, 1920–21 to 1936–37.
Data from table 25 and the California Fruit Growers' Exchange, Los Angeles.

In studying changes in purchasing power, it must be borne in mind that it is a measure of only *one* element in the economic welfare of the orange grower. Strictly speaking, changes in the purchasing power of oranges actually measure changes in the amount of a selected group of commodities bought by farmers that may be obtained in exchange for a box of oranges. An equally important factor to the farmer is the per-acre yield of his orchard. One might go a step further and calculate the purchasing power of the gross income from oranges per bearing acre in California or per orange grower, but this appears to be somewhat too detailed to be included in this publication. Another omitted factor is the cost[17] of producing the oranges.

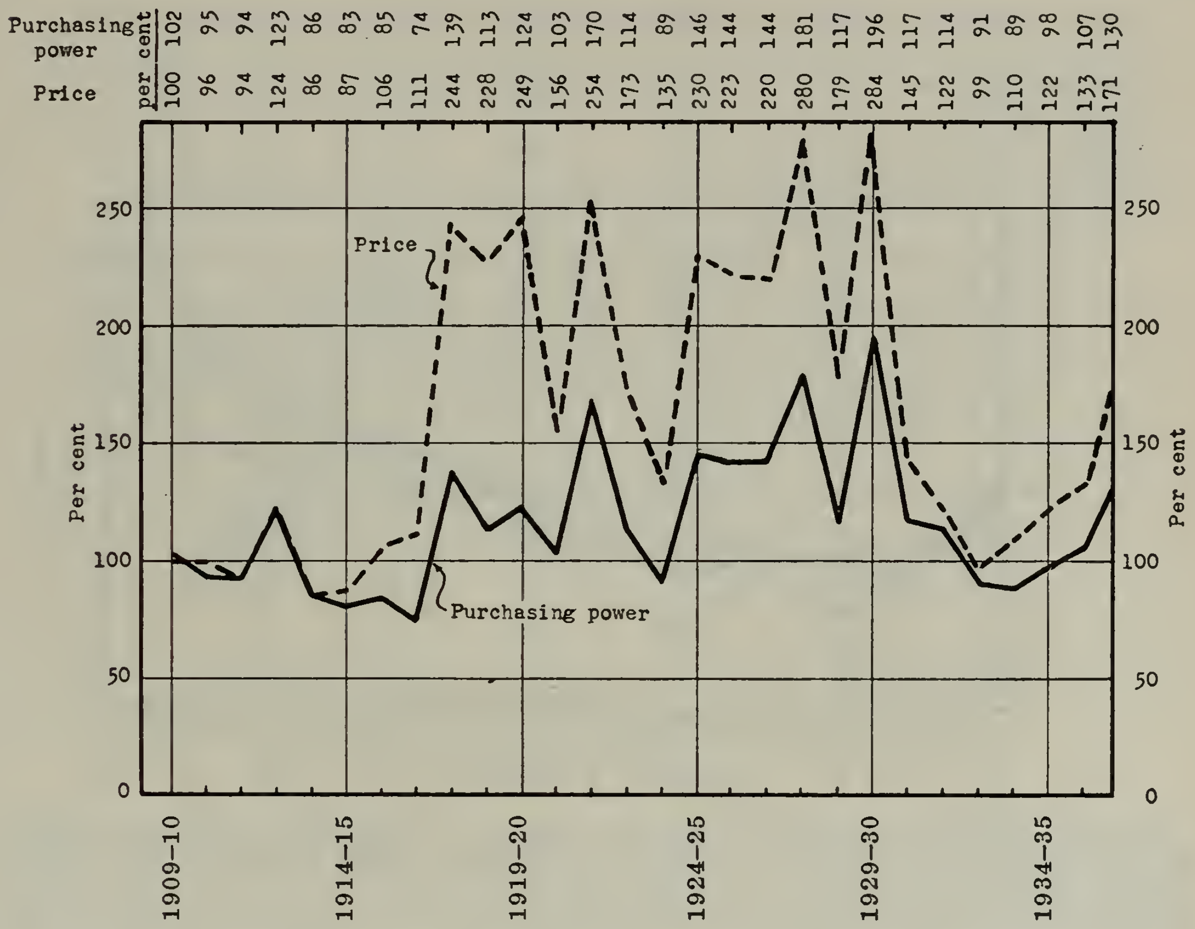


Fig. 17.—F.o.b. price and purchasing power of California winter oranges, 1909–10 to 1936–37 (each expressed as a percentage of its 1909–10 to 1913–14 average).

Calculated from the price of winter oranges as explained on page 32.

Seasonal Variation in Prices of California Oranges.—Orange prices usually have a tendency to rise each month from some low point during the winter season until they reach a peak in October; then they drop off sharply in November and again in December. Although orange prices still follow the same general trend throughout a season as they did ten and fifteen years ago, the prices in September and October do not now average as high a percentage of the annual average price as they did then (fig. 18). These observations must be considered as statements of general tendencies because they are not necessarily true for any one year, as for instance in 1934–35, when the June price of California oranges was lower than that in all other months except December and the highest price came in August.

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[17] See: Shultis, Arthur. Citrus enterprise-efficiency studies in southern California. California Agr. Exp. Sta. Bul. 620:1–79. 1938.

Probably the most important single factor influencing the seasonal variation in orange prices is the variation in shipments of oranges; but, of course, the shipments of competing fruits also have an effect. The illustrations of these movements in figures 8 and 11 (p. 16, 21) may well be studied in conjunction with this discussion on seasonal variation of prices.

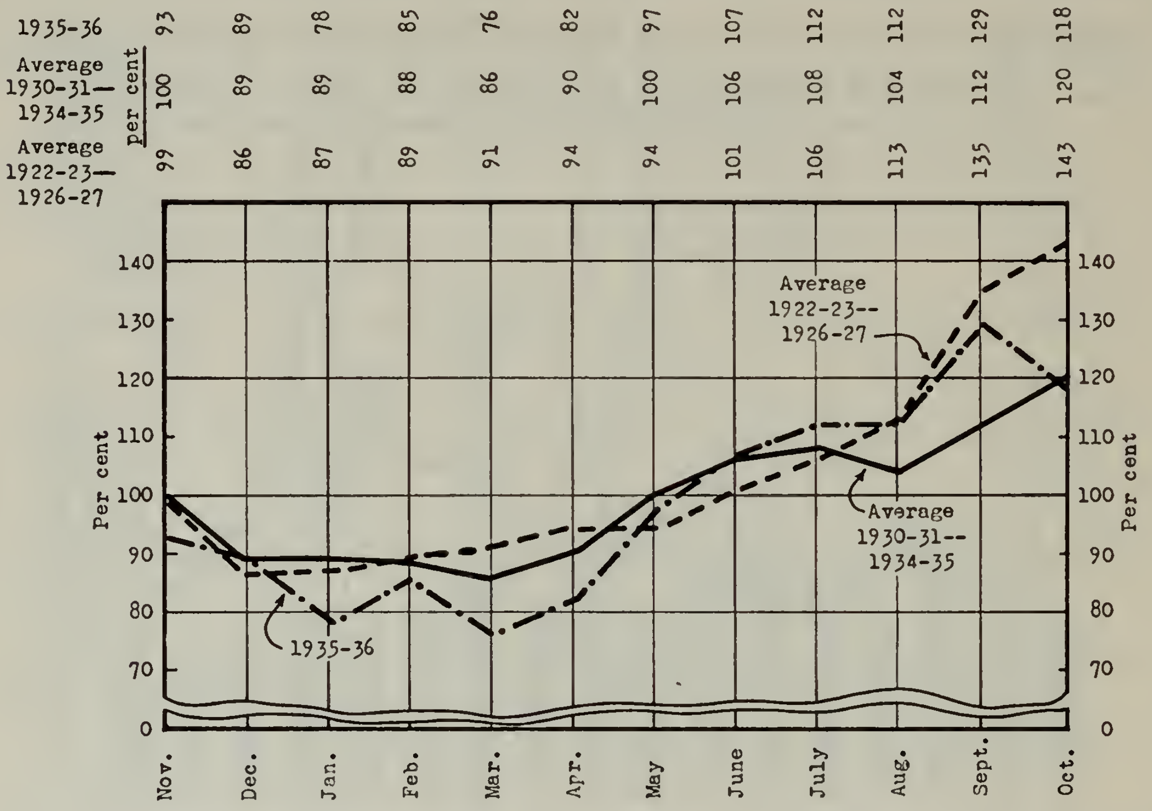

Fig. 18.—Seasonal variation in the f.o.b. prices of California oranges, averages 1922–23 to 1926–27, 1930–31 to 1934–35, and annually 1935–36. (Crop-year average price equals 100 per cent.)

Calculated from data supplied by the California Fruit Growers' Exchange, Los Angeles.

Trend of Demand.—The terms "demand" and "trend of demand" have different meanings to different individuals; many people have almost unconsciously developed and used a certain meaning for the word "demand" that may not be the same as that used by their associates in economic discussions. Sometimes the word is used in the sense of "per-capita demand," and sometimes it is employed without any consideration of population changes. Hence the choice of the proper measure of the trend of demand depends on what one means by "demand" and the use that is to be made of it. In this discussion two easily understood measures are given, the first of which is really a measure of consumption and not demand as used by economists. In addition, two others are mentioned;

so that among them is probably included a measure of what most people have in mind when they speak of "demand."

Figure 19 gives the annual per-capita consumption of oranges in the United States since 1907–8. It is evident that the long-time trend has been upward, but the fluctuations have been so great that for several shorter intervals of time the trend has been concealed. A large part of the increase in the per-capita consumption of oranges occurred during the decade 1919–20 through 1928–29. An objection to the use of merely the annual per-capita consumption of oranges as a measure of demand is that variations in price are responsible for many of the changes in per-capita consumption without any decided change in what economists mean by "demand."

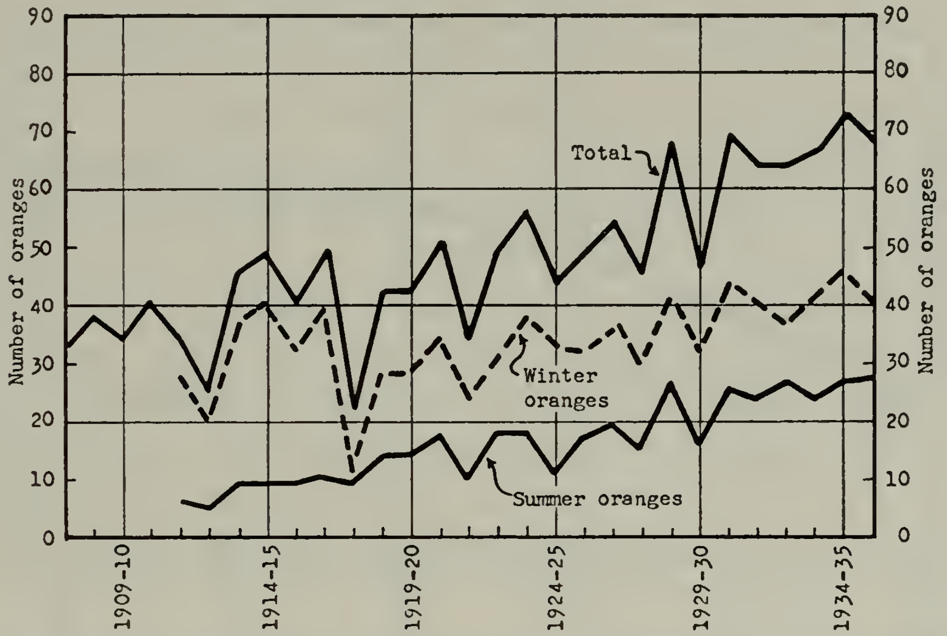

Fig. 19.—Per-capita consumption of oranges, United States, 1907–8 to 1935–36.

Calculated from data in tables 25 and 26 and sources indicated in these tables.

A very simple indication of trend of demand would be the per-capita consumption of oranges at some definite fixed price; but, of course, it is impossible to perform an experiment in economics and hold the price of oranges at $2.50 a box in the same way that field plots are controlled in testing different cultural treatments. Nevertheless, there are statistical methods for removing the influence of the variations in the annual average price of oranges and hence obtaining approximately the annual per-capita consumption at some fixed price. The result is shown in figure 20: it represents roughly what the per-capita consumption probably would have been if the price had been fixed at about $2.50 a box during all these years. From this curve it appears that the demand rose most rapidly in the years just preceding the World War and then the increase was fairly uniform until 1929–30. Since that time the demand has remained practically the same. However, in considering this or any trend in demand, it must be remembered that a smooth curve is used in an effort to illustrate the fundamental long-time changes and that the picture is less certain for the last few years and the earliest years than for the middle years.

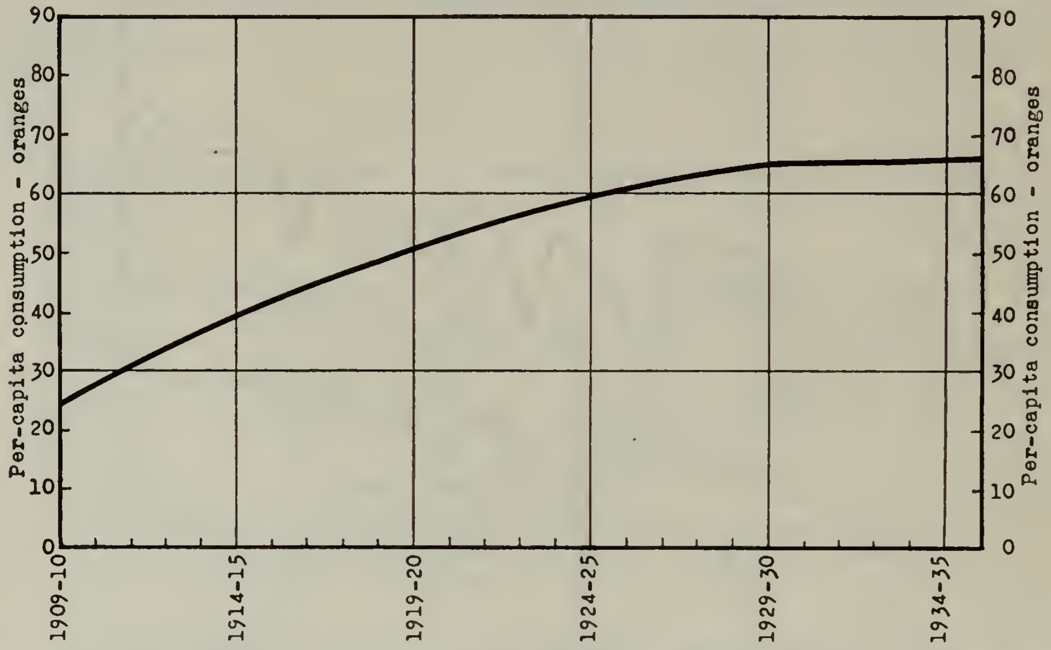

Fig. 20.—Trend in United States per-capita consumption of oranges after removing the influence of variations in price, 1909–10 to 1935–36. Based on statistical analysis of data in figures 13 and 19.

A previous publication of the College of Agriculture, University of California,[18] is devoted entirely to the subject of this section. It gives the measure of demand for winter and summer oranges which is probably most used in agricultural economics. This measure is the average relation that has existed between time and price after simultaneously eliminating variations in price associated with variations in such other factors as volume of orange shipments, consumers' income, production of competing fruits, and the size of oranges.

Another concept that some people have in mind when they speak of an increase in the demand for oranges is that the preference for oranges over competing products has become stronger. This could be pictured by a curve showing the estimated boxes of oranges that probably could have been sold annually at some fixed price, if the price or supplies of competing fruits had also remained fixed throughout the period studied.

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[18] Wellman, H. R. Some economic aspects of regulating shipments of California oranges. California Agr. Exp. Sta. Cir. 338:1–29. January, 1936.

If there were no change other than an increase in population, these last two measures of demand would indicate an increase in demand, while the measure in figure 20 would show no change in the "per-capita demand."

Controlled Marketing.—The voluntary coöperation of California citrus growers in the handling and marketing of their fruit furnishes an outstanding example of the possibilities of voluntary coöperation. Nevertheless, the voluntary marketing agreement for the 1932–33 Valencia crop was not considered entirely satisfactory even though more than 90 per cent of the California Valencia production was included. A weakness in all efforts at voluntarily controlled marketing is the fact that many of the benefits are also obtained by those on the outside without any of the effort and expense: the regulation of the marketing of California oranges could not be entirely satisfactory in those markets receiving unregulated shipments of Florida oranges. Thus in 1933, when the industry was faced with continued increasing production and low consumer income, marketing agreements were formed under the provisions of the Agricultural Adjustment Act.

Agreements in each of the three largest producing areas, California-Arizona, Florida, and Texas went into effect in December, 1933, with the hope that the regulation of shipments from one state would not be nullified by unregulated shipments from another. This very ambitious marketing program also included provisions for the establishment of a national stabilization plan with a stabilization committee and a citrus coördinator. However, no action was ever taken on national proration and the Florida and Texas agreements soon broke down. Nevertheless, the California-Arizona marketing agreement for oranges and grapefruit has been continuously in effect for more than three years, and it appears to have had a high degree of success. The fact that such a high percentage of California orange growers had had experience in marketing fruit under voluntary coöperation has probably been largely responsible for the success of the California-Arizona marketing agreement. In order that intrastate shipments would also be regulated, a similar agreement has been in effect under the provisions of the California Agricultural Adjustment Act.

The distribution committee under the California-Arizona Citrus Marketing agreement determines the weekly amounts of fruit to be shipped interstate and to Canada. These determinations are based on available statistics on present and prospective prices, supplies, and sales, and the judgment of experienced marketing men. After the total amount of fruit to be shipped in a given week has been set, the growers' advisory committee first allots this amount to the different shipping districts and then to the shippers and growers in control of the fruit. Obviously, both committees have heavy responsibilities in performing these difficult tasks.

Although the income that California orange growers would have received since 1933 if there had been no marketing agreement cannot be accurately known, some available statistical evidence and the judgment of many able men closely associated with the operation of the orange industry indicate that growers have actually received more profit with the agreement than they would have received without one. Nevertheless, if the marketing agreement is to be a permanent part of the orange industry, it will require the continued effort of very capable men to approximate the proper amount and type of proration, enforcement, and distribution of benefits and burdens.

UNITED STATES FOREIGN TRADE IN ORANGES

Imports.—In comparison with the total United States supply of oranges, receipts of oranges from foreign countries and noncontiguous territories have been almost negligible for many years: but they have become even more insignificant since 1931. Total foreign imports plus shipments from Puerto Rico have declined from an annual average of 368,000 boxes during the years 1926 through 1928 to an average of 52,000 boxes during the years 1934 through 1936. This decrease, however, has been entirely in the shipments from Puerto Rico (table 6).

Up to 1931, almost all of these receipts of oranges from foreign countries and noncontiguous territories came from Puerto Rico, but the shipments from Puerto Rico have declined, and now they are even smaller than imports from foreign countries. In fact, these shipments decreased from an annual average of 348,000 boxes in 1926 through 1928 to an average of 19,000 in 1932 through 1934; then in 1936 they fell to the much lower figure of 3,000 boxes.

During the three seasons, 1933–34 to 1935–36, 94 per cent of the total shipments from Puerto Rico came in from October through April, with 14 per cent in October and 38 per cent in November (table 33). It is seen, therefore, that although Puerto Rican oranges compete to some extent with late Valencias, the chief competition is with navels. At no time has the competition been serious, and recently it has become negligible.

Total annual foreign imports fluctuated between 14,000 boxes and 39,000 boxes between 1924 and 1935; however, in 1936 they increased to 60,000 boxes. Practically all of these imports are satsuma mandarins from Japan, as shown by the fact that in 1934, 1935, and 1936—the only years since 1928 that Japanese imports have been reported separately—

they constituted 98 per cent of the total foreign imports of oranges. Japanese mandarins enter the port of Seattle and most of them arrive during December. Beginning in 1937, fresh oranges have been reported separately in orange import figures; and during the early months of 1937, these figures ran much below all orange imports for previous years.

TABLE 6

United States Imports of Oranges and Shipments from Puerto Rico to the United States, 1924–1936

Calendar year	Shipments from Puerto Rico plus foreign imports	Shipments from Puerto Rico to United States	Total foreign imports	Imports from Japan*	Imports from Cuba	Imports from other countries
	boxes	*boxes*	*boxes*	*boxes*	*boxes*	*boxes*
1924	272,189	255,422	16,767	12,132	1,577	3,058
1925	501,070	485,252	15,818	13,050	1,058	1,710
1926	329,955	316,078	13,877	11,798	1,264	815
1927	393,389	371,980	21,409	20,141	655	613
1928	380,983	354,618	26,365	23,639	1,748	978
1929	81,079	62,475	18,604	†	1,143	17,461
1930	265,717	226,553	39,164	†	10,562	28,602
1931	108,033	87,156	20,877	†	1,376	19,501
1932	44,177	19,235	24,942	†	2,822	22,120
1933	36,670	14,487	22,183	†	573	21,610
1934	48,941	22,075	26,866	26,324	474	68
1935	44,184	7,403	36,781	36,023	688	70
1936	62,965	2,529	60,436	59,398	377	661

* Imports are almost entirely satsuma mandarins.

† Included in "imports from other countries."

Sources of data:

1924-1935: United States Department of Commerce Bureau of Foreign and Domestic Commerce Foreign commerce and navigation of the United States. Annual issues. Converted to boxes of 70 pounds.

1936: United States Department of Commerce Bureau of Foreign and Domestic Commerce. Monthly summary of foreign commerce of the United States. December issue.

Previously reported imports may have been mostly canned mandarins from Japan, although figures for actual imports of canned mandarins are not available.

Exports.—The United States is definitely on an export basis in oranges; in fact, it ranked third in the world in orange exports for the seasons 1933–34—1935–36. For these seasons, the average exports amounted to 4,311,000 boxes annually, and they averaged 8.9 per cent of the total annual shipments. Exports fell to 2,488,000 boxes in 1936–37, when exports to the United Kingdom became negligible as a result of a short crop of California Valencias and increased competition from Brazil and the Union of South Africa in the United Kingdom market. During the last twenty-five years, exports expressed as a percentage of the United States total shipments have remained surprisingly constant; as shown in table 7, these percentages have ranged from 6.8 to 11.8, with over half of them coming between 7 and 8. As might be expected, the years of bumper crops had the largest exports, not only in actual amount, but also as a percentage of the total shipments.

TABLE 7

UNITED STATES EXPORTS OF ORANGES BY COUNTRIES OF DESTINATION AND TOTAL EXPORTS AS A PERCENTAGE OF TOTAL SHIPMENTS, 1912–13 TO 1936–37

Year, Nov.-Oct.	Country of destination					Total exports	Exports as a per cent of total shipments
	Canada		United Kingdom		Others		
	Quantity	Per cent of total	Quantity	Per cent of total			
	1,000 boxes	*per cent*	*1,000 boxes*	*per cent*	*1,000 boxes*	*1,000 boxes*	*per cent*
1912-13	835	94.9	13	1.5	32	880	7.3
1913-14	1,754	96.2	32	1.8	38	1,824	7.5
1914-15	1,500	94.7	36	2.3	48	1,584	6.8
1915-16	1,589	94.0	28	1.7	74	1,691	7.8
1916-17	1,841	94.4	16	0.8	94	1,951	7.2
1917-18	898	95.7	3	0.3	37	938	8.4
1918-19	1,513	92.6	48	2.9	73	1,634	7.0
1919-20	1,477	92.8	13	0.8	101	1,591	6.8
1920-21	1,984	91.3	40	1.8	150	2,174	7.4
1921-22	1,323	95.0	3	0.2	67	1,393	7.3
1922-23	1,971	92.2	39	1.8	128	2,138	7.4
1923-24	2,323	88.7	114	4.4	183	2,620	7.7
1924-25	1,812	91.6	42	2.1	124	1,978	7.3
1925-26	2,241	85.3	218	8.3	169	2,628	8.5
1926-27	2,684	74.3	605	16.7	323	3,612	10.1
1927-28	2,183	85.9	144	5.7	215	2,542	8.8
1928-29	3,720	66.6	1,388	24.9	474	5,582	11.8
1929-30	1,953	89.3	48	2.2	187	2,188	7.3
1930-31	3,137	63.6	1,136	23.0	663	4,936	10.3
1931-32	2,404	75.1	414	12.9	384	3,202	7.5
1932-33	2,015	59.4	866	25.5	513	3,394	7.8
1933-34	1,963	59.6	757	23.0	576	3,296	7.3
1934-35	2,379	43.8	1,641	30.2	1,406	5,426	10.4
1935-36	2,426	57.6	759	18.0	1,025	4,210	8.8
1936-37	2,203	88.5	23	0.9	262	2,488	....

Sources of data:

1912-13 to June, 1932: United States Department of Commerce Bureau of Foreign and Domestic Commerce. Monthly summary of foreign commerce of the United States. Monthly issues.

July, 1932 to 1936-37: United States Department of Commerce Bureau of Foreign and Domestic Commerce. Exports of fresh fruits. Statement No. 3014. Monthly issues. (Mimeo.)

It is evident from figure 21 that total United States exports of oranges have had a definite upward trend since 1907–8, accompanied, however, by violent fluctuations, particularly during the last ten years. The absolute increase in exports, nevertheless, has been small as compared with the absolute increase in production. Between 1922–23—1924–25 and 1933–34—1935–36, the average production increased 20,680,000 boxes, while the average exports increased only 2,066,000 boxes. The export markets, therefore, purchased only 10 per cent of the increase in production.

Table 8 shows that during recent years, except for the abnormal season of 1936–37, only 39 per cent of the exports occur during the winter season. This is in sharp contrast to domestic shipments, and is due to the keen competition from most foreign orange-exporting countries during these months. California has, however, been more successful in marketing summer oranges because Brazil and South Africa are the only serious competitors after the month of June.

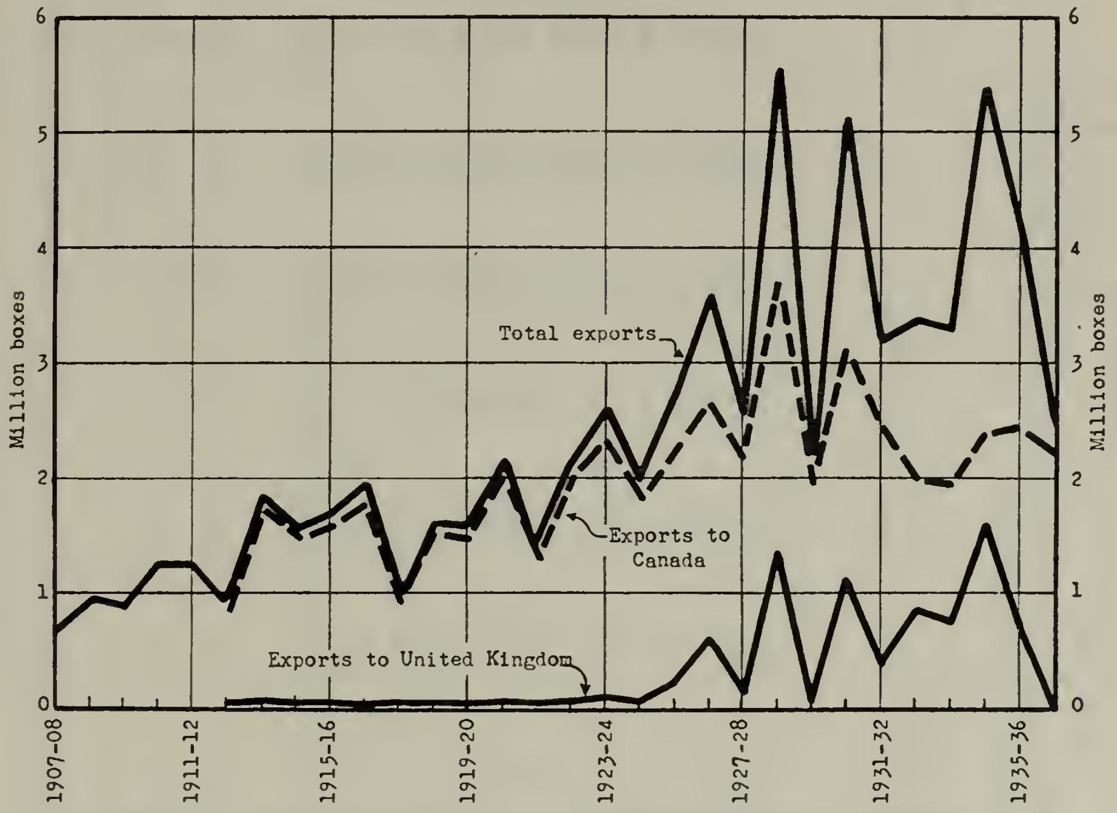

Fig. 21.—United States exports of oranges 1907–8 to 1936–37. Data from table 7.

Main Foreign Markets for Oranges.—Canada has been by far the largest foreign market for United States oranges. Although the percentage of United States exports going to Canada dropped from slightly more than 90 during the seasons 1922–23—1924–25 to 54 for the three seasons 1933–34—1935–36, the actual amount for the latter period is slightly larger. The average for the first period was 2,035,000 boxes and for the latter was 2,256,000 boxes; nevertheless, these exports have fluctuated considerably from year to year as shown in figure 21.

A larger proportion of United States exports has gone to Canada in the winter months than during the summer season; for the seasons 1933–34—1935–36, exports of winter oranges to Canada averaged 71 per

TABLE 8

UNITED STATES EXPORTS OF ORANGES BY MONTHS, AVERAGES 1922–23 TO 1926–27 AND 1931–32 TO 1935–36, AND ANNUALLY 1927–28 TO 1936–37

Month	Average 1922-23 to 1926-27		1927-28	1928-29	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	Average 1931-32 to 1935-36	
	Quantity	Per cent of total											Quantity	Per cent of total
	1,000 boxes	*per cent*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*per cent*
November	115	4.4	88	209	179	157	173	145	148	155	173	188	159	4.1
December	291	11.2	331	345	305	373	271	226	227	242	262	279	246	6.3
January	194	7.5	215	303	191	299	205	141	149	189	243	252	185	4.7
February	192	7.4	234	323	204	331	182	147	192	210	213	200	189	4.8
March	266	10.2	294	536	206	477	253	185	281	350	474	258	309	7.9
April	268	10.3	256	480	221	580	292	380	408	443	678	317	440	11.3
May	289	11.2	288	755	215	791	424	586	497	779	622	192	581	14.9
June	288	11.1	221	657	179	488	293	474	435	767	489	343	492	12.6
July	231	8.9	175	627	144	658	433	539	347	1,094	337	107	550	14.1
August	196	7.6	186	605	152	377	335	268	302	483	387	143	355	9.1
September	149	5.7	146	360	117	287	205	165	190	432	207	135	240	6.1
October	118	4.5	108	382	75	118	136	138	120	282	125	74	160	4.1
Total	2,597	100.0	2,542	5,582	2,188	4,936	3,202	3,394	3,296	5,426	4,210	2,488	3,906	100.0
Total—November-April	1,326	51.0	1,418	2,196	1,306	2,217	1,376	1,224	1,405	1,589	2,043	1,494	1,528	39.1
Total—May-October	1,271	49.0	1,124	3,386	882	2,719	1,826	2,170	1,891	3,837	2,167	994	2,378	60.9

Source of data:

United States Department of Commerce Bureau of Foreign and Domestic Commerce. Monthly summary of foreign commerce of the United States. Monthly issues.

cent of the total winter-orange exports, but exports of summer oranges to Canada were only 40 per cent of the total summer-orange exports. The actual amounts, however, were very similar, the former being 52.9 per cent of the total annual United States exports to Canada and the latter 47.1 per cent. From a study of table 9, it is evident that the United States exports to Canada are fairly uniform in amount throughout the year. For the three seasons, 1933–34—1935–36, October had the smallest percentage—5.1—and April the highest, with 11.6 per cent of the yearly total.

TABLE 9

United States Exports of Oranges to Canada by Months, 1930–31 to 1936–37

Month	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	Average 1933-34 to 1935-36	
								Quantity	Per cent of total
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*per cent*
November	148	157	135	128	137	111	169	125	5.5
December	329	256	215	211	221	218	247	216	9.6
January	254	193	129	133	166	225	238	175	7.7
February	271	175	131	157	193	189	186	180	8.0
March	389	234	170	191	210	308	233	236	10.5
April	429	239	215	195	200	387	285	261	11.6
May	365	281	201	209	261	100	142	190	8.4
June	241	224	241	209	261	263	305	244	10.8
July	236	207	191	151	236	228	82	205	9.1
August	200	185	158	150	199	155	130	168	7.4
September	166	131	118	133	158	131	124	141	6.3
October	109	122	111	96	137	111	62	115	5.1
Total	3,137	2,404	2,015	1,963	2,379	2,426	2,203	2,256	100.0
Total—Nov.-April	1,820	1,254	995	1,015	1,127	1,438	1,358	1,193	52.9
Total—May-Oct.	1,317	1,150	1,020	948	1,252	988	845	1,063	47.1

Sources of data:

1930-31 to June, 1932: United States Department of Commerce Bureau of Foreign and Domestic Commerce. Monthly summary of foreign commerce of the United States. Monthly issues.

July, 1932, to 1936-37: United States Department of Commerce Bureau of Foreign and Domestic Commerce. Exports of fresh fruits. Statement No. 3014. Monthly issues. (Mimeo.)

United States oranges meet with little competition in the Canadian market from those grown in other countries. Even though the proportion of the total orange imports into Canada originating in the United States has fallen during the past ten years, it was still 87 per cent for the year ending March 31, 1937 (table 10). Japanese mandarins are the next-most-important source of Canadian supplies, and they compete mainly with United States shipments during December. Although Aus-

TABLE 10

CANADIAN IMPORTS OF ORANGES BY COUNTRIES OF ORIGIN, 1925–26 TO 1936–37

Year, April-March	United States		Japan	Spain	United Kingdom	Union of South Africa	Jamaica	Palestine	Italy	Australia	Honduras	Others	Total
	Quantity	Per cent of total											
	boxes	*per cent*	*boxes*	*boxes*	*boxes*	*boxes*	*boxes*	*boxes*	*boxes*	*boxes*	*boxes*	*boxes*	*boxes*
1925-26	1,617,018	93.5	81,298	11,071	5,428	......	6,931	......	3,194	780	......	3,835	1,729,555
1926-27	2,144,191	94.7	94,042	4,702	8,629	......	2,359	......	7,239	1	......	2,206	2,263,369
1927-28	2,362,141	94.5	114,110	4,056	10,805	350	1,970	......	2,224	......	......	2,988	2,498,644
1928-29	2,256,797	94.5	109,290	7,071	8,015	34	1,449	281	1,612	350	......	4,470	2,389,369
1929-30	2,708,465	93.0	107,547	24,207	58,603	......	5,624	......	1,675	10	1,697	3,723	2,911,551
1930-31	2,080,218	86.4	104,219	23,261	83,437	17,589	15,580	179	41,171	25,189	346	15,244	2,406,433
	*cu. ft.**	*per cent*	*cu. ft.*	*cu. ft.*	*cu. ft.*	*cu. ft.*	*cu. ft.*	*cu. ft.*	*cu. ft.*	*cu. ft.*	*cu. ft.*	*cu. ft.*	*cu. ft.*
1931-32	4,463,740	88.9	162,746	43,520	46,137	81,145	123,516	9,594	4,166	55,132	......	28,926	5,018,622
1932-33	3,592,047	87.1	163,284	33,158	37,201	6,690	189,481	67,207	4,325	22,585	......	8,956	4,124,934
1933-34	3,654,768	88.1	175,956	41,528	6,651	18,760	112,001	103,745	1,900	8,968	13,797	11,709	4,149,783
1934-35	3,744,151	82.1	228,374	129,494	2,813	222,221	90,774	82,163	6,209	14,278	22,500	18,185	4,561,162
1935-36	4,260,658	86.9	256,383	82,821	12,858	10,000	224,204	12,612	......	1,744	15,194	28,200	4,904,674
1936-37	4,501,344	86.6	281,210	51,558	65,404	248	245,909	4,570	4,826	9,378	10,143	22,453	5,197,043

* Approximately 2 cubic feet in a box of oranges from the United States.

Source of data:
Canada Department of Trade and Commerce, Dominion Bureau of Statistics. Quarterly report of the trade of Canada. March issues.

TABLE 11

UNITED STATES EXPORTS OF WINTER AND SUMMER ORANGES TO CANADA AND THE UNITED KINGDOM, 1921–22 TO 1936–37

Year	Winter oranges				
	Total exports, Nov.-Apr.	Exports to Canada, Nov.-Apr.		Exports to United Kingdom, Nov.-Apr.	
		Quantity	Per cent of total	Quantity	Per cent of total
	1,000 boxes	*1,000 boxes*	*per cent*	*1,000 boxes*	*per cent*
1921-22	924	876	94.8	1	0.1
1922-23	1,071	987	92.1	22	2.1
1923-24	1,402	1,268	90.4	43	3.1
1924-25	1,194	1,107	92.7	25	2.1
1925-26	1,308	1,193	91.2	47	3.6
1926-27	1,656	1,376	83.1	141	8.5
1927-28	1,418	1,268	89.4	34	2.4
1928-29	2,197	1,840	83.8	207	9.4
1929-30	1,306	1,161	88.9	24	1.8
1930-31	2,217	1,819	82.0	240	10.8
1931-32	1,376	1,254	91.1	45	3.3
1932-33	1,224	995	81.3	118	9.6
1933-34	1,406	1,014	72.1	198	14.1
1934-35	1,588	1,127	71.0	137	8.6
1935-36	2,043	1,438	70.4	292	14.3
1936-37	1,494	1,358	90.9	17	1.1

Year	Summer oranges				
	Total exports, May-Oct.	Exports to Canada, May-Oct.		Exports to United Kingdom, May-Oct.	
		Quantity	Per cent of total	Quantity	Per cent of total
	1,000 boxes	*1,000 boxes*	*per cent*	*1,000 boxes*	*per cent*
1921-22	469	447	95.3	2	0.4
1922-23	1,066	984	92.3	17	1.6
1923-24	1,218	1,056	86.7	71	5.8
1924-25	784	705	89.9	17	2.2
1925-26	1,320	1,049	79.5	171	12.9
1926-27	1,956	1,308	66.9	463	23.7
1927-28	1,124	915	81.4	110	9.8
1928-29	3,386	1,879	55.5	1,180	34.8
1929-30	883	792	89.7	23	2.6
1930-31	2,719	1,317	48.4	896	33.0
1931-32	1,826	1,151	63.0	369	20.2
1932-33	2,171	1,020	47.0	748	34.5
1933-34	1,891	948	50.1	558	29.5
1934-35	3,838	1,253	32.6	1,504	39.2
1935-36	2,166	988	45.6	467	21.6
1936-37	993	845	85.1	6	0.6

Sources of data:

1921-22 to June, 1932: United States Department of Commerce Bureau of Foreign and Domestic Commerce. Monthly summary of foreign commerce of the United States. Monthly issues.

July, 1932 to 1936-37: United States Department of Commerce Bureau of Foreign and Domestic Commerce. Exports of fresh fruits. Statement No. 3014. Monthly issues. (Mimeo.)

TABLE 12

UNITED KINGDOM IMPORTS OF WINTER ORANGES BY COUNTRIES OF ORIGIN, 1929–30 TO 1936–37

Season, Nov.-Apr.	Brazil		Palestine		South Africa		Spain		United States		Others		Total	
	Quantity	Per cent of total	Quantity	Per cent of total	Quantity	Per cent of total	Quantity	Per cent of total	Quantity	Per cent of total	Quantity	Per cent of total	Quantity	Per cent of total
	*1,000 boxes**	*per cent*	*1,000 boxes**	*per cent*	*1,000 boxes**	*per cent*	*1,000 boxes**	*per cent*	*1,000 boxes**	*per cent*	*1,000 boxes**	*per cent*	*1,000 boxes**	*per cent*
1929-30	40	0.3	2,031	16.5	91	0.8	9,849	79.9	59	0.5	250	2.0	12,320	100.0
1930-31	83	0.8	1,816	17.8	110	1.1	7,869	77.0	183	1.8	155	1.5	10,216	100.0
1931-32	405	3.7	2,629	23.6	81	0.7	7,896	71.0	5	....	109	1.0	11,125	100.0
1932-33	168	1.5	3,059	26.7	161	1.4	7,989	69.6	11	0.1	86	0.7	11,474	100.0
1933-34	179	1.7	3,261	31.1	241	2.3	6,508	62.0	69	0.7	244	2.2	10,502	100.0
1934-35	239	2.1	4,798	43.0	206	1.8	5,617	50.3	73	0.7	239	2.1	11,172	100.0
1935-36	252	2.4	3,571	34.8	221	2.2	5,878	57.2	138	1.3	214	2.1	10,274	100.0
1936-37	367	2.7	6,824	51.1	235	1.8	5,398	40.5	40	0.3	482	3.6	13,346	100.0

* Boxes of 70 pounds.

Sources of data:

1929-30 to 1933-34: United States Department of Agriculture Bureau of Agricultural Economics. Statistics relating to the citrus industry **1933**:19, 1933; **1934**:22, 1935. (Mimeo.)

1934-35 to 1936-37: [Great Britain] Board of Trade. Accounts relating to trade and navigation of United Kingdom. Monthly issues. (Converted from British hundredweights of 112 pounds to boxes of 70 pounds.)

tralia appears to be losing its small part of this market, the British Empire countries of the Union of South Africa, Jamaica, and Palestine have increased their shipments from 0.5 per cent of the total Canadian imports in 1928–29—1930–31 (years ending in March) to 6 per cent of the total imports for the seasons 1934–35—1936–37. The imports from these countries have no doubt been aided by the Canadian tariff preference to Empire countries. It appears that Jamaica and Japan may be the chief competitors of the United States in the winter-orange market, and there will probably not be much competition in the summer. Only a very limited quantity of European oranges is consumed in Canada; these are winter oranges which enter largely in January and February.

The United Kingdom is the second-most-important foreign[19] market for the United States and the largest importer of oranges in the world; hence a rather detailed analysis of this market is desirable. United States exports to the United Kingdom have increased from an annual average of 65,000 boxes (or 3 per cent of the total exports) for the seasons 1922–23—1924–25, to 1,052,000 boxes (or 24 per cent of the total exports) for the three seasons 1933–34—1935–36. In comparison with exports to Canada, those to the United Kingdom have made very marked gains, except in 1936–37, as illustrated in figure 21; in fact, during the period between 1923–24 and 1935–36, United States exports of oranges to the United Kingdom rose from 5 per cent to 31 per cent of those to Canada.

The United States winter exports to the United Kingdom have increased both in actual amount and relative to the total winter exports, but they have failed to maintain the pace of the summer exports to the United Kingdom. Although the percentage of the total winter exports that go to this market has increased from 5 for the seasons 1927–28—1929–30 to 12 during the three seasons 1933–34—1935–36, it is still much smaller than the proportion of summer exports going to the United Kingdom (table 11). This is due to the strong competition of Spanish and Palestine oranges in the winter months. Actually, less than 1 per cent of the total winter-orange imports into the United Kingdom for the past eight years has come from the United States, while 63 per cent came from Spain and 31 per cent from Palestine. Winter oranges from Palestine have been gradually replacing those from Spain: the Spanish percentage has fallen from 80 in 1929–30 to 40 in 1936–37, while that from Palestine rose from 16 to 51 (table 12). The drop in imports from Spain in 1934–35 was partly due to a severe frost that limited the amount of oranges available for export; however, if the effect of the frost is disregarded, the fact still remains that the proportion of Spanish winter oranges consumed in the United Kingdom has dropped during most recent seasons.

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[19] See table 34 (p. 85) in the Appendix for other countries that import some oranges from the United States.

Fortunately from the point of view of the United States, particularly the Valencia-producing districts of California, the summer-orange market in the United Kingdom receives only a few supplies from Spain and Palestine, and its imports of oranges between May and October have doubled during the past decade. In 1925 and 1926, they averaged 2,807,000 boxes, and for the two seasons 1936 and 1937, the average had risen to 6,217,000 boxes. United States summer-orange exports to the United Kingdom have increased from an annual average of 86,000 boxes (8 per cent of total summer-orange exports) for 1924–1926, to 843,000 (32 per cent of summer exports) for 1934–1936. However, in 1936–37 California had the smallest commercial supply of summer oranges since 1930 and summer-orange exports to the United Kingdom became negligible; this decrease was more than counterbalanced by increased United Kingdom imports from Brazil and South Africa.

The United States shipped an annual average of 14 per cent of the United Kingdom imports of summer oranges for the years 1930 through 1936, and, with South Africa (30 per cent), Spain (27 per cent), and Brazil (25 per cent), furnished practically all of the summer oranges imported into the United Kingdom during this period (table 13). From a study of table 14, it is clear that Spanish summer-orange shipments come mainly during the first two months of the season. The shipments from the United States are heaviest during the first four months of the season. Brazilian shipments are fairly uniform throughout the period May to October and overlap some with the winter season. South African shipments enter mainly during the last four months of the season, with a few extending into the winter-orange market. The South African countries have the advantage of the Imperial preference granted by the Ottawa Trade Agreements of 1932, and they may have good opportunities in this market if they can improve quality standards and the marketing is efficiently managed. Nevertheless, Brazil has a large amount of land suitable for growing oranges at low cost and they may become the dominant source of supply for this market, particularly if the Ottawa tariffs should be dropped. After a study of the retail marketing of South African oranges in the Liverpool area, the Empire Marketing Board reported that customers preferred California oranges because of the better and more uniform quality, and the branded, more dependable supply. The common requirements are for juicy, sweet, and thin-skinned

TABLE 13

UNITED KINGDOM IMPORTS OF SUMMER ORANGES BY COUNTRIES OF ORIGIN, 1930–1937

Season, May-Oct.	Brazil		South Africa		Spain		United States		Others		Total	
	Quantity	Per cent of total	Quantity	Per cent of total	Quantity	Per cent of total	Quantity	Per cent of total	Quantity	Per cent of total	Quantity	Per cent of total
	*1,000 boxes**	*per cent*	*1,000 boxes**	*per cent*	*1,000 boxes**	*per cent*	*1,000 boxes**	*per cent*	*1,000 boxes**	*per cent*	*1,000 boxes**	*per cent*
1930............	503	10.0	1,650	32.8	2,771	55.1	42	0.8	64	1.3	5,030	100.0
1931............	1,378	24.7	1,469	26.4	1,318	23.6	1,184	21.2	225	4.1	5,574	100.0
1932............	1,448	31.4	1,600	34.6	1,040	22.5	456	9.9	74	1.6	4,618	100.0
1933............	1,578	25.3	1,637	26.2	2,035	32.6	856	13.7	136	2.2	6,242	100.0
1934............	1,711	28.3	1,856	30.7	1,574	26.1	700	11.6	201	3.3	6,042	100.0
1935............	1,558	27.2	1,734	30.2	421	7.3	1,763	30.8	257	4.5	5,733	100.0
1936............	1,758	30.7	1,936	33.8	1,227	21.4	593	10.3	220	3.8	5,734	100.0
1937............	2,315	34.6	2,964	44.2	1,076	16.1	22	0.3	323	4.8	6,700	100.0

* Boxes of 70 pounds.

Sources of data:

1930-1934: United States Department of Agriculture Bureau of Agricultural Economics, Foreign Agricultural Service Division. Statistics relating to the citrus industry **1933**:19, 1933; **1934**:22, 1935. (Mimeo.)

1935-1937: [Great Britain] Board of Trade. Accounts relating to trade and navigation of United Kingdom. Monthly issues. (Converted from British hundredweights of 112 pounds to boxes of 70 pounds.)

TABLE 14

MONTHLY IMPORTS OF ORANGES INTO THE UNITED KINGDOM BY COUNTRIES OF ORIGIN, 1934 AND 1935

Month	Brazil		Palestine		South Africa and Southern Rhodesia		Spain		United States		Other countries	
	1934	1935	1934	1935	1934	1935	1934	1935	1934	1935	1934	1935
	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**
January	.....	.....	557	936	.....	.....	1,282	1,088	2	.....	50	51
February	.....	.....	619	1,107	.....	.....	1,104	699	2	.....	61	47
March	.....	.....	1,055	1,339	.....	.....	1,249	931	43	2	51	32
April	8	2	413	734	.....	.....	445	413	48	67	26	16
May	274	221	22	43	3	8	926	170	171	277	3	6
June	378	333	6	10	120	88	498	203	226	342	3	3
July	234	321	.....	.....	442	547	123	18	179	366	6	11
August	222	217	.....	.....	355	367	14	.....	78	355	48	53
September	329	235	.....	.....	344	379	2	.....	32	248	61	32
October	274	197	.....	.....	592	423	2	.....	18	157	49	11
November	209	176	.....	2	198	203	283	174	3	21	26	11
December	24	34	595	733	8	19	2,182	1,960	.....	.....	69	45
Total	1,952	1,736	3,267	4,904	2,062	2,034	8,110	5,656	802	1,835	453	318

* Boxes of 70 pounds.

Source of data:

[Great Britain] Imperial Economic Committee. Fruit supplies in 1935 including vegetables, flowers and bulbs. (A supplement to Weekly Fruit Intelligence Notes.) p. 43. London, 1936.

medium or small oranges, which are satisfied by the California oranges and to a lesser degree by those from Brazil.[20]

FOREIGN PRODUCTION AND EXPORTS OF ORANGES

Practically all tropical, semitropical,[21] and subtropical countries produce oranges. The statistics are unsatisfactory in many countries, but there is a world-wide tendency toward expanded production, improved quality, and improved methods of marketing. The principal orange-producing (including mandarins) countries in the world ranked according to size of production in 1932–33—1934–35 are United States, Spain, Brazil, China, Japan, Italy, Palestine, Mexico, Uruguay, Union of South Africa, and Australia. As may be seen in table 15, the approximate world production has ranged between 191 and 220 million boxes since 1930–31, 60 per cent of which was produced in the United States, Spain, and Brazil. China, Japan, and Italy have each had in the neighborhood of 6 per cent of the approximate world production, while the remaining countries mentioned have had not far from 2 per cent apiece.

Spain.—Spain ranks second to the United States in the production of oranges and produces far more than any of the other countries except Brazil. For the past ten years, the Spanish production has not changed greatly, as compared with a slowly increasing trend in the United States. During the three years, 1932–33—1934–35, the average annual production in Spain was 35,170,000 boxes, while the average annual production in the United States was 54,259,000 boxes; these amounted to 17.0 and 26.2 per cent of the approximate world production during this period of time. A heavy freeze early in February, 1935, other freezes, and the internal difficulties have impaired Spanish orange production prospects for the next few years. It has been officially estimated that the 1935–36 crop was reduced to 28,654,000 boxes, about 18 per cent below that of the previous year; but the preliminary estimate for the 1936–37 season is for a production about equal to those of earlier years. An important change is taking place in Spanish orange varieties with activity directed toward the Washington Navel.

Spain is by far the largest exporter of oranges (table 16); in fact, it ships oranges to about fifty countries. Exports of Spanish oranges tended to increase until 1932–33, when 30,677,000 boxes, or 85 per cent of the

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[20] [Great Britain] Empire Marketing Board. Report on an enquiry into the retail marketing of South African oranges in the Liverpool area. Empire Marketing Board Spec. Rept. 7:8. March, 1930.

[21] A semitropical region, as used here, is a type of the subtropical in which the climate is typically tropical half of the year—as in Florida, where the summers are both warm and humid.

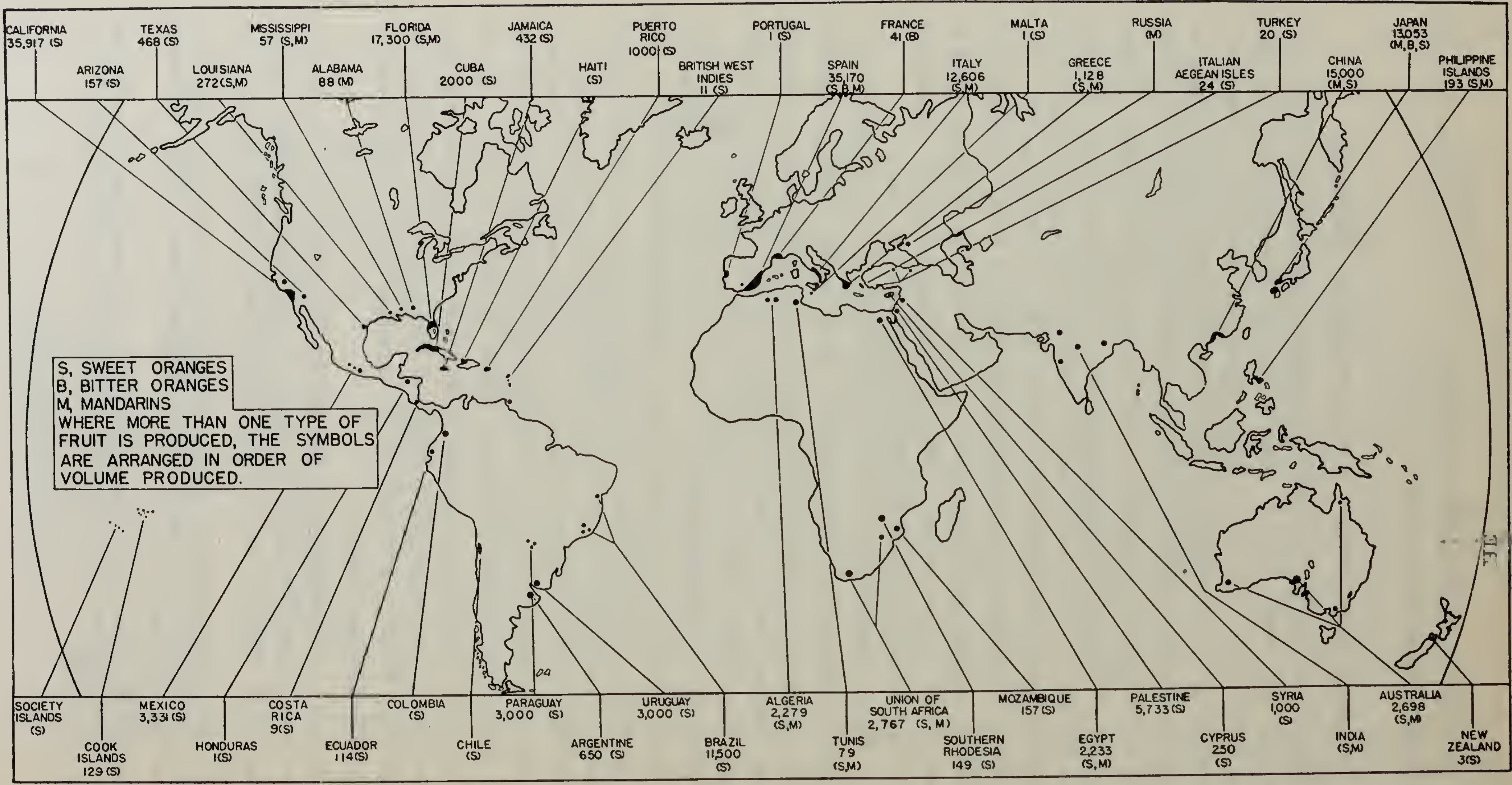

Fig. 22.—Orange-growing countries of the world. Production in thousands of boxes of 70 pounds, average 1932–33 to 1934–35, except for some countries of very minor importance, where data are export or production figures for the middle twenties. Since the completion of this map, estimates of Brazil production have been revised to 35,009,000 boxes; see table 15.

Data from table 1, United States Department of Agriculture Foreign Agricultural Service Division, and Statistics and Intelligence Branch of the Empire Marketing Board (Oranges, world production and trade. p. 4. April, 1929.)

TABLE 15

ORANGE* PRODUCTION IN PRINCIPAL COUNTRIES,† 1921–22 TO 1936–37

Crop year‡	United States	Spain	Brazil**	Japan	Italy	Palestine†	Mexico	Union of South Africa†	Australia	Others§	Approximate world production
	1,000 boxes¶	*1,000 boxes¶*	*1,000 boxes¶*	*1,000 boxes¶*	*1,000 boxes¶*	*1,000 boxes¶*	*1,000 boxes¶*	*1,000 boxes¶*	*1,000 boxes¶*	*1,000 boxes¶*	*1,000 boxes¶*
1921-22	22,539	......	......	......	9,485	1,400	......	......	1,718	......	......
1922-23	32,569	25,761	......	9,367	10,219	1,500	......	......	1,739	......	......
1923-24	38,496	25,741	......	8,498	9,198	1,800	......	......	1,693	......	......
1924-25	30,328	36,899	......	8,827	9,004	2,400	......	......	1,839	......	......
1925-26	34,597	36,902	......	11,415	9,171	1,700	......	......	1,996	......	......
1926-27	40,062	32,890	......	10,009	9,621	2,700	......	......	1,878	......	......
1927-28	32,708	35,750	......	11,262	7,300	2,400	......	......	2,000	......	......
1928-29	55,131	35,300	......	11,438	7,000	2,000	3,200	1,550	2,400	......	......
1929-30	32,621	45,200	......	10,405	9,610	3,000	3,200	2,400	2,100	......	......
1930-31	55,362	37,700	22,046	12,975	8,518	2,700	3,500	2,300	2,450	43,449	191,000
1931-32	50,164	37,900	27,558	12,496	10,260	4,000	3,949	2,500	2,712	39,461	191,000
1932-33	51,415	36,109	32,642	13,053	16,188	5,000	3,557	2,600	2,603	40,833	204,000
1933-34	47,374	34,400	36,281	13,943	10,263	5,000	2,885	2,800	2,713	41,341	197,000
1934-35	63,988	35,000	36,104	12,164	11,367	7,500	3,550	2,900	2,778	44,649	220,000
1935-36	52,073	28,654‖	36,039‖	17,274	10,148	6,000	3,552	3,300	1,700‖	46,260	205,000
1936-37‖	55,174	......	......	......	13,188	10,500	......	......	......	......	......
Average 1932-33 to 1934-35	54,259	35,170	35,009	13,053	12,606	5,833	3,331	2,767	2,698	42,274	207,000
Per cent of total	*26.2*	*17.0*	*16.9*	*6.3*	*6.1*	*2.8*	*1.6*	*1.3*	*1.3*	*20.5*	*100.0*

* Includes mandarins.

† Annual figures are not available for China and Uruguay, but their average annual productions are estimated at about 15,000,000 and 3,000,000 boxes respectively. The production for Palestine and for the Union of South Africa is roughly estimated from exports.

‡ Production in the southern hemisphere countries is for calendar years compared with crop years for the northern hemisphere; that is, South African production in 1929 is compared with the 1928-29 crop year of the northern hemisphere.

** These production figures for Brazil are much larger than formerly accepted production estimates; they apparently include oranges produced by seedling and wild trees.

§ Production in these countries is roughly approximated, but the numbers are chosen so as to give the approximate world production in round numbers.

¶ Boxes of 70 pounds.

‖ Preliminary.

Source of data:

United States Department of Agriculture Bureau of Agricultural Economics, Foreign Agricultural Service Division. Correspondence.

total production in the country, were exported. However, in 1935–36 exports had fallen to 22,249,000 boxes (which were, nevertheless, 78 per cent of the total production) and in 1936–37 to 14,000,000 boxes, according to a preliminary estimate. This severe drop was perhaps due to some loss of markets to foreign competitors as well as to frosts, internal difficulties, and the top-working of trees in an effort to improve the quality. With the restoration to normal bearing of some of the injured trees, Spanish exports may be expected to increase again, unless artificial import restrictions are increased in Europe, or the civil war interferes with future orange production and exports.

TABLE 16

EXPORTS OF ORANGES* FROM PRINCIPAL EXPORTING COUNTRIES, 1921–22 TO 1936–37

Season†	Spain	Palestine	United States	Italy	Brazil	Union of South Africa	Australia
	1	*2*	*3*	*4*	*5*	*6*	*7*
	1,000 boxes‡	*1,000 boxes*‡	*1,000 boxes*‡	*1,000 boxes*‡	*1,000 boxes*‡	*1,000 boxes*‡	*1,000 boxes*‡
1921-22	19,696	1,234	1,393	2,727	178	323	.....
1922-23	19.658	1,366	2,138	2,559	331	400	.....
1923-24	23,234	1,589	2,620	3,677	365	455	.....
1924-25	27,527	2,147	1,978	4,635	406	726	.....
1925-26	24,597	1,515	2,628	4,423	210	579	.....
1926-27	20,000	2,025	3,612	5,005	360	738	.....
1927-28	24,000	1,996	2,542	2,542	561	659	43
1928-29	23,786	1,581	5,582	2,950	943	962	98
1929-30	32,537	2,696	2,188	3,881	812	1,717	51
1930-31	25,676	2,470	4,936	4,096	2,054	1,508	157
1931-32	28,505	3,632	3,202	1,819	1,930	1,719	238
1932-33	30,677	4,225	3,394	4,705	2,554	1,952	181
1933-34	26,286	5,097	3,296	2,722	2,632	2,200	184
1934-35	24,304	6,508	5,426	3,023	2,640	2,101	343
1935-36	22,249	4,997	4,210	2,339§	3,217	2,317	264
1936-37§	14,004	9,167	2,488	4,505	.....	.....	.....

* Includes mandarins.

† The season for northern-hemisphere countries is from November 1 to October 31 and for southern-hemisphere countries from about April 1 to October 31.

‡ Boxes of 70 pounds.

§ Preliminary.

Sources of data:

Cols. 1, 2, 4, 5, 6, and 7: United States Department of Agriculture Bureau of Agricultural Economics, Foreign Agricultural Service Division. Correspondence.

Col. 3: United States Department of Commerce Bureau of Foreign and Domestic Commerce. Monthly summary of foreign commerce of the United States. Monthly issues.

Table 17 gives the orange exports from Spain by countries of destination. Based on the average for 1933–1935, the three countries of Great Britain, France, and Germany take 78 per cent of the total Spanish exports. The most outstanding change in exports to an individual country is the sharp decline in exports to Great Britain since 1930. Heaviest Spanish exports have been in December, when 22 per cent of the total

TABLE 17

Exports of Oranges from Spain by Countries of Destination, Calendar Years 1928–1935

Country	1928	1929	1930	1931	1932	1933	1934	1935	Average 1933-1935	
									Quantity	Per cent of total
	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*1,000 boxes**	*per cent*
Belgium	1,340	1,154	1,399	2,036	2,041	2,261	1,675	1,424	1,787	6.7
Denmark	266	213	250	213	282	283	256	222	254	0.9
France	6,564	5,211	6,283	4,877	6,311	8,470	8,190	5,650	7,437	27.6
Germany	5,015	4,312	7,435	5,677	5,463	5,046	5,610	5,711	5,456	20.3
Great Britain	10,786	10,893	12,307	9,133	8,570	10,718	8,252	5,412	8,127	30.2
Holland	2,218	2,019	3,367	2,185	2,033	1,905	1,293	1,093	1,430	5.3
Norway	419	456	647	416	558	554	583	369	502	1.9
Sweden	348	327	441	369	550	536	733	522	597	2.2
Switzerland	......	137	1,164	811	798	476	667	491	545	2.0
Others	85	245	863	1,218	1,141	551	596	1,163	769	2.9
Total	27,041	24,967	34,156	26,935	27,747	30,800	27,855	22,057	26,904	100.0

* Boxes of 70 pounds. Converted from quintales to boxes by multiplying by 3.1494.

Source of data:

[Spain.] Consejo de la Economia Nacional. Estadistica del commercio exterior de Espana. Madrid, Spain. Annual issues.

TABLE 18

Monthly Exports of Oranges from Spain and Italy, Averages 1933–1935 and 1932–1934

Month	Spain		Italy	
	Average 1933-1935		Average 1932-1934	
	1,000 boxes	*per cent*	*1,000 boxes*	*per cent*
January	3,337	12.4	526	17.1
February	3,987	14.8	691	22.4
March	4,422	16.4	773	25.1
April	3,314	12.3	536	17.4
May	3,355	12.5	251	8.1
June	1,503	5.6	38	1.2
July	471	1.8	1	....
August	104	0.4	....	....
September	10	....	....	....
October	3	....	....	....
November	545	2.0	21	0.7
December	5,853	21.8	248	8.0
Total	26,904	100.0	3,085	100.0

Sources of data:

[Spain] Consejo de la Economia Nacional. Estadistica del commercio exterior de Espana. Madrid, Spain. Annual issues.

[Italy] Direzione Generale delle Dogane. Statistica del commercio speciale di importazione e di esportazione. Rome. Monthly issues.

TABLE 19

Exports of Oranges* from Palestine by Countries of Destination, 1927–28 to 1936–37

Country	1927–28	1928–29	1929–30	1930–31	1931–32	1932–33	1933–34	1934–35	1935–36	1936–37	Average 1933-34 to 1935-36	
											Quantity	Per cent of total
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*per cent*
United Kingdom and Irish Free State	1,729	1,259	1,998	1,725	2,563	3,061	3,180	4,586	3,359	6,610	3,709	67.0
Belgium	†	†	†	†	†	21	44	111	63	194	73	1.3
Czechoslovakia	†	†	2	5	9	4	1	58	71	147	43	0.8
Denmark	†	†	42‡	84‡	72	68	85	60	85	65	77	1.4
France	9	18	12	7	21	19	44	141	77	191	87	1.6
Germany	142	191	421	511	655	733	1,239	493	207	245	646	11.7
Netherlands	32	34	36	12	50	78	138	358	311	549	269	4.8
Norway	†	†	§	§	24	29	63	99	98	142	87	1.6
Poland	†	†	2	6	16	10	27	153	255	279	145	2.6
Roumania	52	37	39	43	102	74	96	148	115	178	120	2.2
Sweden	†	†	§	§	39	40	59	105	148	285	104	1.9
Yugoslavia	†	†	†	4	7	4	3	27	19	48	16	0.3
Other continental	27	37	15	31	42	28	64	115	167	228	115	2.0
Total continental	262	317	569	703	1,037	1,108	1,863	1,868	1,616	2,551	1,782	32.2
Others	5	5	129	42	32	56	54	54	22	6	43	0.8
Total	1,996	1,581	2,696	2,470	3,632	4,225	5,097	6,508	4,997	9,167	5,534	100.0

*Previous to 1932-33, the figures include a small amount of grapefruit and lemons. The crop year is November-October.

† Included in "other continental."

‡ Includes exports to Norway and Sweden.

§ Included with Denmark.

Sources of data:

1927-28 to 1931-32: [Great Britain] Empire Marketing Board. Fruit supplies in 1932. E.M.B. **65**:118. 1933.

1932-33 to 1934-35: [Great Britain] Imperial Economic Committee. Fruit supplies in 1933 including vegetables, flowers and bulbs. p. 84. 1934. *And:* Fruit supplies in 1935 including vegetables, flowers and bulbs. p. 84. 1936. (A supplement to Weekly Fruit Intelligence Notes.)

1935-36 to 1936-37: [Great Britain] Imperial Economic Committee. Weekly fruit intelligence notes. July 15, 1936, p. 11. Sept. 8, 1937, p. 10. London.

for 1933 through 1935 were exported (table 18). They continued heavy through May and then dropped off rapidly.

Palestine.—The trend of orange production in Palestine is definitely upward, as indicated by the fact that the production has more than tripled during the past few years. It was about 3,000,000 boxes in the crop year 1929–30 and the preliminary estimate for 1936–37 is 10,500,000 boxes, approximately 5 per cent of the total world production. Under normal weather conditions, future production will continue this upward trend as the recently planted trees come into bearing and bearing trees increase their yield.

Although Palestine ranks only seventh in orange production, it has become the second-largest exporter of oranges during recent years. Almost all of the Palestine production is exported, and oranges now constitute over 40 per cent of the value of the exports of all domestic products from Palestine. Orange exports increased from 1,234,000 boxes in 1921–22 to 6,508,000 boxes in 1934–35, more than five times the former figure; and preliminary estimates indicate that in 1936–37 they will be slightly over 9,000,000 boxes. As its exports are mainly during the months of December through April, they come into direct competition with those from Spain.

Practically the whole export consists of one variety known as the "Shamouti" or "Jaffa" orange. It is of fine quality, extremely juicy, and of good flavor; later in the season it acquires a deep-orange color preferred on the English market.[22]

From tables 17 and 19, it is evident that oranges from Palestine have been replacing those from Spain in the United Kingdom since 1930. Palestine exports to the United Kingdom and Irish Free State increased from 1,725,000 boxes in 1930–31 to about 6,600,000 boxes in 1936–37, an increase of 283 per cent. Part of this increase was no doubt made possible because of the Spanish difficulties during recent seasons. This replacement of Spanish oranges in the United Kingdom by those from Palestine is one of the outstanding phenomena of the international trade in oranges.

Most of the continental customers of Palestine have also increased their consumption of its oranges. Exports to continental Europe increased from 262,000 boxes in 1927–28 to 2,551,000 boxes in 1936–37, an increase of 874 per cent. During the three years, 1933–34—1935–36, the United Kingdom and the Irish Free State received 67 per cent of the Palestine orange exports and continental Europe 32 per cent, slightly more than one-third of the latter going to Germany.

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[22] [Great Britain.] Empire Marketing Board. Palestine orange shipments. E.M.B. 68:7. July, 1933.

TABLE 20

EXPORTS OF ORANGES* FROM ITALY BY COUNTRIES OF DESTINATION, CALENDAR YEARS 1928–1936

Country	1928	1929	1930	1931	1932	1933	1934	1935	1936	Average 1934-1936	
										Quantity	Per cent of total
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*per cent*
Austria	402	404	644	603	415	598	483	487	501	490	17.4
Czechoslovakia	170	154	356	349	196	626	219	189	88	165	5.8
Germany	933	1,221	1,672	1,443	615	1,667	796	798	1,116	903	32.0
Hungary	288	209	276	289	114	302	375	380	411	389	13.8
Poland	126	117	140	110	9	6	1	75	34	37	1.3
Sweden	143	151	258	308	178	353	193	226	32	150	5.3
Switzerland	86	144	228	343	198	547	433	422	373	410	14.5
Yugoslavia	172†	173†	219	150	77	87	46	26	23	32	1.1
Others	181	338	378	228	135	312	278	339	128	248	8.8
Total	2,501	2,911	4,171	3,823	1,937	4,498	2,824	2,942	2,706	2,824	100.0

* Includes mandarins.

† Data for the Kingdom of Serbs, Croats, and Slovenes, which was officially named Yugoslavia in October, 1929.

Sources of data:

1928-1931: [Italy] Direzione Generale delle Dogane. Movimento commerciale del Regno d'Italia. Rome. Annual issues.
1932-1934: [Italy] Direzione Generale delle Dogane. Statistica del commercio speciale di importazione e di esportazione. Rome. Monthly issues.
1935-1936: [Italy] Institute Centrale di Statistica del Regno d'Italia. Commercio estero. Rome. Annual issues. (Data converted from quintali to boxes by multiplying by 3.1494.)

Italy.—Italy has shown only a small increase in the production of oranges within the past fifteen years, and it appears not likely to change greatly in the near future. During the three seasons 1932–33—1934–35, the annual production averaged 12,606,000 boxes, or about 6 per cent of the approximate world production, and the preliminary estimate for 1936–37 is 13,188,000 boxes.

Previous to 1927–28, Italy was second to Spain in total orange exports, but in 1935–36 it was also surpassed by Palestine, the United States, and Brazil; and perhaps the Union of South Africa may soon have consistently larger exports. During the seasons, 1934–35—1936–37, Italy exported an average of 3,289,000 boxes of oranges annually, and throughout 1934–1936, the latest period that exports by countries of destination are available, Germany received approximately one-third of these exports. As shown in table 20, the other leading consumers of Italian oranges are Austria, Switzerland, Hungary, Sweden, and Czechoslovakia. It is rather striking that neither Great Britain nor France consumes Italian oranges in any sizable amount, whereas they are the heaviest importers of Spanish oranges.

Approximately one-half of the Italian orange exports of the years 1932–1934 moved during February and March, a time when Spain and Palestine export heavily. Italian exports start in November and increase almost uniformly until February and then decrease uniformly from March through June.

Brazil.—The trend of orange production has been upward in Brazil, where production has increased from 22,046,000 boxes in 1931 to more than 36,000,000 boxes at the present time. Reliable detailed information on the Brazilian orange industry is not available, but some sources state that there were about 100,000 acres of oranges in 1931 with around 10,000,000 trees in bearing and 6,000,000 not yet bearing. This large number of nonbearing trees indicates that an increase in production may be expected in the next decade. A United States Department of Agriculture report states, "Potentially Brazil probably has more land suitable for citrus than any other country, and production costs are among the lowest prevailing anywhere. The quality of the fruit is good and rapid strides have been made in adopting American production and marketing technique."[23]

Although there were some exports of oranges and tangerines from Brazil as early as 1913, only during the last decade have they offered serious competition to other orange-exporting countries. Exports of oranges steadily increased from 360,000 boxes in 1927 to 3,217,000 boxes in 1936, an increase of almost 800 per cent. Although the figures for 1937 exports are not yet available, it appears certain that they will exceed those of any other year. In 1933, approximately 66 per cent of the Brazilian orange exports went to the United Kingdom, 11 per cent to other European countries, and 22 per cent to Argentina. Brazil has become a major competitor for the United Kingdom summer-orange market, for its exports occur chiefly from May through November; in fact, some students of the South African orange industry consider Brazil a more serious competitor than California. If the Ottawa tariffs should be dropped in the future, Brazil will be in a favorable position. Its orange industry made a few experimental shipments to Canada near the close of the 1935 season, but information was insufficient to warrant conclusions as to its possibilities as a serious competitor in the largest foreign market for California oranges.

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[23] United States Department of Agriculture Bureau of Agricultural Economics. The citrus industry in Brazil. p. 1. December 21, 1934. (Mimeo.)

Union of South Africa.—Although producing only about 1.3 per cent of world production—an average of 2,767,000 boxes in 1933–1935—the Union of South Africa has become more important in the international orange situation during recent years. Its production has more than doubled in the last seven years, and is expected to increase somewhat in the future. H. Clark Powell has pointed out, however, that "the South African industry can never equal the size of the industry in Spain, California, or Florida, because the country does not possess sufficient irrigable, frost-free land."[24] Enthusiasm has also been dampened by reports of excessive plantings in Brazil and the realization that the trees already planted will produce increasing quantities of fruit. The present tendency is to concentrate more on increasing the yields on those trees which hold the greatest promise. This is borne out by the number of trees issued from nurseries in 1931, 1932, and 1933: 4, 3, and 3 per cent respectively of the 3,883,350 commercial trees on farms in 1930. There is also a tendency to grow more Washington Navels and Valencias and fewer seedlings.

The fact that the local consuming population is small leaves most of these South African oranges available to compete for foreign markets, and the Imperial preference granted at the Imperial Economic Conference at Ottawa in 1932 has given the Union of South Africa a definite advantage over California and Brazil, its chief competitors, in the United Kingdom summer-orange market, to which most of its oranges are shipped. As may be seen in table 16, its exports have increased from 323,000 boxes in 1922 to 2,317,000 boxes in 1936, an increase of almost 620 per cent, and preliminary figures indicate that they were even greater in 1937. The South African shipping season is from late May to early December, with the bulk of the shipments occurring during the four months July through October.

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[24] Powell, H. Clark. Economic importance of citrus industry in South Africa. University of Pretoria Series No. 1(24):8. 1933.

The Union of South Africa has an advantage in cheap land and labor, but the yields are low. The marketing of the South African orange has suffered because of a lack of uniform good quality, a dependable supply, and a sound advertising and marketing system, but efforts are being made to improve these aspects of the situation.

TABLE 21

Japanese Orange Trees and Production by Varieties, Averages 1924–1927, 1928–1931, and Annually 1932–1935

Type	Average 1924-1927*	Average 1928-1931*	1932*	1933*	1934*	1935*
Number of trees						
	1,000 trees	*1,000 trees*	*1,000 trees*	*1,000 trees*	*1,000 trees*	*1,000 trees*
Mandarin	20,055	21,130	22,245	22,816	23,838	25,156
Navel	1,394	1,456	1,530	1,559	1,561	1,620
Bitter	3,328	3,283	3,288	3,271	3,391	3,474
Others	2,248	2,189	2,124	2,143	2,151	2,204
Total	27,025	28,058	29,187	29,789	30,941	32,454
Production						
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*
Mandarin	7,575	8,783	9,485	10,744	8,430	13,918
Navel	416	523	608	581	644	615
Bitter	1,700	1,812	2,230	1,899	2,360	2,058
Others	687	711	730	719	730	683
Total	10,378	11,829	13,053	13,943	12,164	17,274

* Statistical year is August through July, except for mandarins for which it is February through January.

Source of data:

[Japan] Department of Agriculture and Forestry. The statistical abstract of the Ministry of Agriculture and Forestry. Annual issues. Tokyo. (Converted from kilograms to boxes by multiplying by 0.0314943.)

Japan.—The production of oranges in Japan increased from 9,367,000 boxes in 1922–23 to an average of 13,053,000 boxes in 1932–33—1934–35, of which about 73 per cent were mandarins, 17 per cent bitter oranges, 5 per cent navels, and the balance was not identified. During this time there was an average of about 30,000,000 trees, which indicates a small yield per tree. Further details regarding the distribution of the trees and production between the different varieties are given in table 21.

Australia.—Orange production in Australia has been slowly increasing during the past fifteen years, from 1,718,000 boxes in 1922 to an average of 2,698,000 boxes in 1933–1935. Most of these oranges were consumed in the domestic market, as is demonstrated by the fact that during the three seasons, 1933–1935, an average of only 9 per cent of the annual production, or 236,000 boxes, were exported. Of these exports, New Zealand received approximately 65 per cent; however, shipments to the United Kingdom increased from 10,000 boxes in 1931–32 to 88,000 boxes in 1933–34.[25]

China.—Figures on annual orange (primarily mandarin) production are not available for China, but the production has been estimated at 15,000,000 boxes. Only 3 per cent of the production, or an average of 465,000 boxes, was exported annually from 1933 to 1935, when about one-half of the Chinese orange exports went to French Indo-China.[26]

Uruguay.—Annual orange production figures likewise are not available for Uruguay, but the production has been estimated at 3,000,000 boxes. Exports from Uruguay average around 100,000 boxes annually, almost all of which go to Argentina.[27]

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[25] Commonwealth Bureau of Census and Statistics. Australian statistics. Aust. Bur. Census and Statis. Oversea Trade Bul. Annual issues.

[26] China. Inspectorate general of customs. Foreign trade of China. Annual issues.

[27] Uruguay. Direccion General de Estadistica. Anuario Estadisto. Annual issues.

ACKNOWLEDGMENTS

The author of this bulletin wishes to express his appreciation for the information supplied by the following organizations: California Coöperative Crop Reporting Service; California Fruit Growers' Exchange; California-Arizona Orange Grapefruit Agency; United States Department of Agriculture Bureau of Agricultural Economics; and the United States Department of Commerce Bureau of Foreign and Domestic Commerce. Individuals in the Bureau of Agricultural Economics who were generous with their time and data are Mr. Reginald Royston, Mr. Gustave Burmeister, Mr. Archie C. Edwards, and Mr. Sam Katz. The author is particularly indebted to Dr. H. R. Wellman, of the Giannini Foundation, University of California, for his counsel throughout the preparation of this bulletin. Dr. S. W. Shear, also of the Giannini Foundation, furnished data for the discussion of the consumption of fresh fruits; Professor Robert W. Hodgson, of the Division of Subtropical Horticulture, University of California, gave suggestions on the orange industry in foreign countries; and Dr. M. A. Joslyn, of the Division of Fruit Products, University of California, gave counsel regarding orange-juice products and by-products. Dr. L. D. Batchelor, Director of the Citrus Experiment Station; Mr. Warren R. Schoonover, of the Agricultural Extension Service; and Mr. R. E. Blair, of the California Coöperative Crop Reporting Service, read the manuscript and offered valuable suggestions. While a colleague at the University of California, Dr. Dallas W. Smythe, now of the Central Statistical Board, coöperated in the preparation of the first draft of parts of this bulletin. Miss Pearl Adolphson compiled most of the statistical information and conducted the manuscript through the final stages of preparation for the printer. Mrs. Virginia D. Hinson, of the United States Department of Agriculture, assisted in the compilation and checking of data obtained from sources in Washington, D. C.

APPENDIX OF TABLES

TABLE 22

BEARING AND NONBEARING ACREAGE OF ORANGES BY VARIETIES IN CALIFORNIA, 1924–1937; AND TOTAL BEARING ACREAGE,* 1919–1937

Year	Total bearing	Total nonbearing	Total acreage	Washington navels and miscellaneous			Valencias		
				Bearing	Nonbearing	Total	Bearing	Nonbearing	Total
	acres	*acres*	*acres*	*acres*	*acres*	*acres*	*acres*	*acres*	*acres*
1924	177,978	15,002	192,980	95,146†	4,059†	99,205†	79,102†	8,305†	87,407†
1925	181,341	13,123	194,464	95,420†	3,031†	98,451†	80,894†	6,772†	87,666†
1926	184,060	13,648	197,708	91,572†	1,581†	93,153†	77,435†	6,575†	84,010†
1927	184,494	25,096	209,590	95,992	3,772	99,764	88,502	21,324	109,826
1928	187,459	26,503	213,962	96,839	3,698	100,537	90,620	22,805	113,425
1929	193,595	24,946	218,541	97,415	3,567	100,982	96,180	21,379	117,559
1930	197,435	25,127	222,562	97,855	3,812	101,667	99,580	21,315	120,895
1931	201,785	26,315	228,100	98,049	4,623	102,672	103,736	21,692	125,428
1932	207,125	29,106	236,231	98,583	5,223	103,806	108,542	23,883	132,425
1933	207,692	31,389	239,081	95,689	7,357	103,046	112,003	24,032	136,035
1934	211,346	28,491	239,837	96,624	5,442	102,066	114,722	23,049	137,771
1935	217,100	27,170	244,270	97,000	6,370	103,370	120,100	20,800	140,900
1936	214,284	23,716	238,000	87,823	6,774	94,597	126,461	16,942	143,403
1937	221,800	17,600	239,400	89,900	5,700	95,600	131,900	11,900	143,800

* Total bearing acreage is as follows: 1919—145,000; 1920—162,000; 1921—171,928; 1922—175,415; 1923—176,800.

† Total for Los Angeles, Orange, Riverside, San Bernardino, and Tulare counties.

Sources of data:

1924-1926: California Coöperative Crop Reporting Service. California crop reports. Annual issues. California Dept. Agr. Spec. Pubs. **55, 63, 74.**

1927-1932: California Coöperative Crop Reporting Service. Acreage estimates California fruit and nut crops 1927 to 1932. California State Dept. Agr. Spec. Pub. **117**:19-21. 1932.

1933-1935 and 1937: California Coöperative Crop Reporting Service. Correspondence.

1936: California Coöperative Crop Reporting Service. Summary of California fruit and nut plantings acreage survey of 1936. p. 8. April, 1937.

TABLE 23

CALIFORNIA ORANGE ACREAGE BY COUNTIES: BEARING ACREAGE 1921, 1924, 1928, 1932, 1936, AND NONBEARING ACREAGE 1936

County	Navels				Valencias				Total					
	Bearing acreage			Non-bearing	Bearing acreage			Non-bearing	Bearing acreage					Non-bearing
	1928	1932	1936*	1936*	1928	1932	1936	1936	1921	1924	1928*	1932*	1936	1936
	acres	*acres*	*acres*	*acres*	*acres*	*acres*	*acres*	*acres*	*acres*	*acres*	*acres*	*acres*	*acres*	*acres*
Alameda	36	36	2	......	15	15	......	1	......	......	51	51	2	1
Contra Costa	4	4	2	......	......	......	......	......	......	......	4	4	2	......
Napa	1	2	4	......	......	......	1	......	......	......	1	2	5	......
San Luis Obispo	......	......	1	......	......	......	1	......	......	......	6	6	2	......
Santa Clara	9	9	19	2	......	......	2	......	......	......	9	9	21	2
Santa Cruz	4	6	2	......	......	......	......	......	......	......	4	6	2	......
Sonoma	......	......	8	......	......	......	1	......	......	......	20	14	9	......
Butte	1,441	1,450	782	926	......	......	1	......	2,100	1,850	1,491	1,500	783	926
Colusa	48	48	15	......	5	5	3	......	55	20	53	53	18	......
Glenn	695	695	600	147	21	21	19	14	684	717	716	716	619	161
Sacramento	1,300	1,297	615	89	......	......	9	......	1,532	1,530	1,311	1,358	624	89
Solano	14	23	11	......	......	......	......	......	85	90	14	23	11	......
Sutter	9	9	21	1	......	......	......	......	......	......	9	9	21	1
Tehama	22	100	58	16	......	......	......	......	110	18	22	100	58	16
Yolo	17	27	21	9	......	......	1	......	20	35	17	27	22	9
Yuba	53	34	6	96	......	......	......	......	50	220	53	34	6	96
Fresno	1,623	1,773	1,940	387	120	560	556	49	3,600	3,900	1,823	2,425	2,496	436
Kern	1,127	1,114	1,208	137	67	74	84	23	1,167	1,225	1,194	1,198	1,292	160
Madera	......	......	1	......	......	......	......	......	......	......	2	2	1	......
Merced	16	15	10	......	......	......	3	......	38	5	16	15	13	......
San Joaquin	......	......	......	......	......	......	......	......	49	52	30	6	......	......
Stanislaus	136	137	27	17	......	......	......	......	94	98	136	137	27	17
Tulare	25,510	25,701	22,988	2,096	11,119	11,101	10,252	801	35,294	35,686	36,878	37,078	33,240	2,897

Amador	......	......	2	......	......	......	......	......	......	......	2	11	2	......
Calaveras	6	6	......	......	......	......	......	......	......	......	6	6	......	......
Mariposa	......	......	4	......	......	......	......	......	......	......	9	17	4	......
Nevada	......	......	......	......	......	......	......	......	......	......	2	2	......	......
Placer	130	130	35	182	4	4	......	4	315	275	140	140	35	186
Tuolumne	5	5	......	......	......	......	......	......	......	......	5	5	......	......
Imperial	7	12	454	165	50	159	805	84	......	......	57	233	1,259	249
Los Angeles	16,538	15,828	14,414	677	24,345	26,678	25,377	3,953	39,987	39,825	41,591	43,044	39,790	4,630
Orange	982	917	1,415	110	37,938	47,051	57,675	6,681	31,500	33,000	39,012	48,051	59,090	6,791
Riverside	12,084	12,383	14,216	373	3,364	3,849	4,478	150	14,000	16,000	16,035	16,862	18,695	523
San Bernardino	29,258	29,658	25,449	916	8,734	8,958	9,802	856	37,515	38,759	39,649	40,489	35,251	1,772
San Diego	768	939	1,344	340	935	2,330	5,193	1,606	1,411	1,411	1,748	3,326	6,537	1,946
Santa Barbara	145	218	103	5	20	316	156	18	71	130	165	534	260	23
Ventura	1,267	1,599	2,046	83	3,883	6,141	12,042	2,702	2,251	3,132	5,178	7,767	14,087	2,785
State	93,255	94,175	87,823	6,774	90,620	107,262	126,461	16,942	171,928	177,978	187,459	205,260	214,284	23,716

* Includes miscellaneous varieties.

Sources of data:

1921, 1924: Wellman, H. R., and E. W. Braun. Oranges (Series on California crops and prices). California Agr. Exp. Sta. Bul. **457**:53. August, 1928.

1928, 1932: California Coöperative Crop Reporting Service. Acreage estimates California fruit and nut crops 1927 to 1932. California State Dept. Agr. Spec. Pub. **117**:19-21. 1932.

1936: California Coöperative Crop Reporting Service. Summary of California fruit and nut plantings acreage survey of 1936. p. 8. April, 1937.

TABLE 24

CALIFORNIA ORANGE ACREAGE CLASSIFIED ACCORDING TO VARIETY AND PLANTING DATE, 1936

Variety	Total area, 1936	Per cent of total acres, 1936	Per cent in bearing, 1936	Percentage of 1936 acreage planted in years indicated						
				1914 or earlier	1915 to 1919	1920 to 1924	1925 to 1929	1930 to 1934	1935	1936
	acres	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*
Navel	88,545	37.2	93.0	55.2	13.5	7.5	14.6	7.9	0.9	0.4
Valencia	143,403	60.2	88.2	29.3	17.0	12.8	18.5	19.7	1.7	1.0
Seedling types	1,575	0.7	92.6	62.0	15.4	6.4	7.4	4.3	3.5	1.0
All tangerines	1,705	0.7	88.4	23.6	11.9	8.4	32.8	21.7	1.4	0.2
Miscellaneous	2,772	1.2	89.5	34.9	11.6	8.0	32.8	10.7	1.4	0.6
All	238,000	100.0	90.0	39.3	15.7	10.7	17.2	15.0	1.4	0.7

Source of data:

United States Department of Agriculture, Agricultural Adjustment Administration. California fruit and nut acreage survey 1936. Statistical publication 1:12 January, 1938.

TABLE 25

UNITED STATES COMMERCIAL WINTER-ORANGE SUPPLY, 1920–21 TO 1936–37

Season, Nov.-Apr.	United States shipments						Receipts from Puerto Rico	U. S. exports	U. S. supply
	California	Florida	Arizona	Texas	Others	Total			
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*
1920-21	11,349	7,103	20	0	31	18,503	112	......	......
1921-22	8,252	5,519	34	0	45	13,850	336	924	13,262
1922-23	9,934	7,838	33	0	161	17,966	516	1,071	17,411
1923-24	11,369	11,337	41	1	221	22,969	145	1,402	21,712
1924-25	10,267	9,555	20	1	2	19,845	253	1,194	18,904
1925-26	11,782	7,643	41	2	118	19,586	347	1,308	18,625
1926-27	13,782	8,833	33	2	65	22,715	241	1,656	21,300
1927-28	11,903	6,888	15	8	169	18,983	412	1,418	17,977
1928-29	15,472	12,321	30	8	130	27,961	11	2,197	25,775
1929-30	11,351	8,366	42	55	243	20,057	205	1,306	18,956
1930-31	15,526	13,807	42	32	107	29,514	69	2,217	27,366
1931-32	15,125	10,731	30	83	133	26,102	28	1,376	24,754
1932-33	13,132	11,045	49	69	159	24,454	11	1,224	23,241
1933-34	12,570	15,059	58	333	60	28,080	15	1,406	26,689
1934-35	17,166	13,044	65	415	123	30,813	14	1,588	29,239
1935-36	13,848	13,683	85	526	40	28,182	3	2,043	26,142
1936-37	10,942	15,569	85	1,393	67	28,056	2	1,494	26,564

Sources of data:

Cols. 1 and 7: California Fruit Growers' Exchange. Correspondence.

Cols. 2, 3, 4, 5: United States Department of Agriculture Bureau of Agricultural Economics. Car-lot shipments of fruits and vegetables by commodities, states and months. Annual summaries. (Mimeo.) (Data converted from carlots to boxes.)

Col. 8: United States Department of Commerce Bureau of Foreign and Domestic Commerce. Monthly summary of foreign commerce of the United States. Monthly issues.

Col. 9: Figures in col. 6 plus figures in col. 7, minus figures in col. 8.

TABLE 26

UNITED STATES COMMERCIAL SUMMER-ORANGE SUPPLY, 1921–1937

Season, May-Oct.	United States shipments				Receipts from Puerto Rico	U. S. exports	U. S. supply
	California	Florida	Others	Total			
	1	*2*	*3*	*4*	*5*	*6*	*7*
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*
1921	10,549	409	10	10,968	55	......	......
1922	4,528	661	13	5,202	204	469	4,937
1923	10,063	1,019	3	11,085	50	1,066	10,069
1924	10,086	1,056	1	11,143	90	1,218	10,015
1925	6,669	577	10	7,256	116	784	6,588
1926	10,813	483	1	11,297	69	1,320	10,046
1927	12,160	829	40	13,029	124	1,956	11,197
1928	9,154	607	8	9,769	28	1,124	8,673
1929	17,735	1,702	46	19,483	15	3,386	16,112
1930	9,306	792	15	10,113	52	883	9,282
1931	16,426	1,977	11	18,414	14	2,719	15,709
1932	16,011	851	8	16,870	2	1,826	15,046
1933	15,884	2,919	17	18,820	2	2,171	16,651
1934	15,234	1,856	46	17,136	3	1,891	15,248
1935	19,431	1,681	1	21,113	2	3,838	17,277
1936	17,474	2,229	99	19,802	1	2,166	17,637
1937	11,005	3,660	82	14,747	..	993	......

Sources of data:

Cols. 1 and 5: California Fruit Growers' Exchange. Correspondence.

Cols. 2 and 3: United States Department of Agriculture Bureau of Agricultural Economics. Car-lot shipments of fruits and vegetables by commodities, states and months. Annual summaries. (Mimeo.) (Data converted from carlots to boxes.)

Col. 6: United States Department of Commerce Bureau of Foreign and Domestic Commerce. Monthly summary of foreign commerce of the United States. Monthly issues.

Col. 7: Figures in col. 4 plus figures in col. 5, minus figures in col. 6.

TABLE 27

MONTHLY PRICES PER BOX RECEIVED FOR ORANGES SHIPPED* F.O.B. CALIFORNIA, BY FOUR-YEAR PERIODS FROM 1920–21 TO 1931–32, AND ANNUALLY 1932–33 TO 1936–37

Month	Average 1920-21 to 1923-24	Average 1924-25 to 1927-28	Average 1928-29 to 1931-32	1932-33	1933-34	1934-35	1935-36	1936-37
	dollars	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*
November	3.34	4.12	3.16	1.99	1.30	1.94	2.31	2.12
December	2.59	3.47	2.94	1.63	1.97	1.72	2.22	1.84
January	2.59	3.49	2.78	1.60	1.83	1.84	1.95	3.15
February	2.68	3.71	2.67	1.40	1.72	1.84	2.11	2.96
March	2.91	3.76	2.70	1.35	1.66	2.04	1.90	3.05
April	3.04	4.00	2.95	1.27	1.88	1.99	2.05	3.32
May	3.25	4.13	3.11	1.74	2.59	2.02	2.41	3.21
June	3.43	4.28	3.13	1.69	3.10	1.83	2.66	3.58
July	3.47	4.70	3.26	1.89	2.68	2.17	2.80	4.08
August	3.67	4.68	3.13	1.88	2.71	2.25	2.80	4.02
September	3.93	5.45	3.56	2.18	2.64	2.10	3.21	4.03
October	3.47	5.68	3.53	1.92	3.52	2.24	2.93	3.48
Average	3.11	4.16	3.04	1.75	2.34	2.01	2.49	3.27

* Beginning May, 1930, prices are for packed fruit only.

Source of data:
California Fruit Growers' Exchange. Correspondence.

TABLE 28

WEIGHTED AVERAGE AUCTION PRICE PER BOX OF CALIFORNIA VALENCIA ORANGES, CHICAGO AND NEW YORK, BY MONTHS, 1926–27 TO 1937–1938

Season	April	May	June	July	August	September	October	November	December	January	Average for season
					Chicago						
	dollars	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*
1926-27	....	4.46	4.37	4.97	4.48	5.45	6.36	6.04	....	....	5.04
1927-28	....	4.42	4.90	5.48	5.96	6.70	6.81	6.50	....	....	5.59
1928-29	....	7.16	6.40	7.36	7.15	7.50	7.17	....	....	....	7.11
1929-30	....	....	4.08	3.87	4.45	4.36	4.57	....	....	....	4.23
1930-31	5.83	7.40	7.04	7.08	7.17	7.57	8.49	6.85	....	....	7.33
1931-32	....	3.31	3.57	3.96	3.55	3.78	4.26	3.53	3.23	....	3.75
1932-33	2.72	3.29	3.10	3.35	2.96	3.25	3.34	3.59	3.19	....	3.24*
1933-34	....	....	2.86	3.10	3.15	3.35	3.31	2.81	2.13	2.24	3.01
1934-35	....	3.88	4.40	3.97	3.99	3.84	4.56	4.40	....	....	4.16
1935-36	3.58	3.39	3.04	3.35	3.32	3.46	3.45	3.50	3.22	....	3.34†
1936-37	....	3.43	3.77	4.05	3.96	4.40	4.30	4.14	....	....	4.08
1937-38	4.28	4.24	4.70	5.18	5.29	5.42	5.01	4.28	....	....	4.08
					New York						
	dollars	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*
1926-27	4.92	4.58	4.46	5.21	4.89	5.39	6.44	6.79	6.69	....	5.28
1927-28	4.66	4.43	4.98	5.90	6.15	6.73	7.02	6.71	5.75	....	6.00
1928-29	5.94	7.38	7.22	7.58	7.45	7.77	7.53	6.79	....	....	7.45
1929-30	4.09	4.40	4.58	4.13	4.85	4.73	4.85	4.77	4.85	5.18	4.63
1930-31	6.59	7.97	7.19	7.36	7.33	7.29	8.69	7.78	....	....	7.59
1931-32	....	3.42	3.62	4.31	3.81	3.86	4.50	3.79	2.98	....	3.97
1932-33	2.85	3.43	3.28	3.62	3.05	3.42	3.43	3.77	4.07	....	3.41
1933-34	....	3.06	2.86	3.24	3.21	3.47	3.36	2.81	1.89	2.66	3.12
1934-35	....	3.75	4.73	3.95	4.06	3.98	4.65	4.64	....	....	4.25
1935-36	3.59	3.52	3.12	3.46	3.48	3.56	3.45	3.67	3.18	3.76	3.45
1936-37	....	3.99	3.92	4.13	4.09	4.45	4.36	4.46	....	....	4.21
1937-38	4.42	4.19	4.75	5.39	5.36	5.39	5.11	4.46	....	....	....

* Includes an average in March, 1932, of $2.73.

† Includes an average in February, 1936, of $3.49.

Sources of data:

1926-27 to 1936-37: United States Department of Agriculture. Agricultural statistics **1936**:134, 1936; **1937**:159, 1937.
1937-38: United States Department of Agriculture Bureau of Agricultural Economics, Division of Statistical and Historical Research. Correspondence.

TABLE 29

WEIGHTED AVERAGE AUCTION PRICE PER BOX OF CALIFORNIA NAVEL ORANGES, CHICAGO AND NEW YORK, BY MONTHS, 1926–27 TO 1936–37

Season	November	December	January	February	March	April	May	June	Average for season
Chicago									
	dollars	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*
1926-27	....	4.68	4.63	4.87	4.58	4.63	....	....	4.66
1927-28	....	5.42	4.62	5.41	5.55	6.07	....	....	5.43
1928-29	5.87	4.74	4.52	3.76	3.36	3.93	3.51	....	4.09
1929-30	6.29	5.75	5.08	5.19	6.25	6.31	6.82	....	5.79
1930-31	5.33	3.49	3.45	3.20	3.48	3.31	4.14	....	3.60*
1931-32	3.63	3.09	2.71	3.39	3.00	3.09	3.37	....	3.13
1932-33	3.14	2.78	2.84	2.66	2.55	2.43	2.87	3.07	2.72
1933-34	2.80	3.22	2.97	2.77	2.82	2.81	3.41	3.22	2.98
1934-35	3.26	2.68	2.83	2.91	3.15	3.32	2.74	....	2.97
1935-36	3.78	3.41	3.06	3.21	3.09	3.14	3.47	3.19	3.23
1936-37	3.61	2.91	3.76	4.00	3.96	4.25	4.68	....	3.81
New York									
	dollars	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*
1926-27	6.32	5.06	4.69	4.71	4.54	4.89	4.43	5.60	4.74
1927-28	6.28	5.55	4.56	5.18	5.52	5.98	7.39	....	5.61
1928-29	5.72	4.46	4.84	3.89	3.52	4.06	3.56	3.56	4.10
1929-30	5.97	5.56	4.98	4.99	5.67	6.03	6.64	....	5.64
1930-31	5.23	3.58	3.45	3.27	3.42	3.32	3.93	3.52	3.54
1931-32	3.87	3.30	2.71	3.35	3.06	3.08	3.38	....	3.14
1932-33	3.05	2.78	2.84	2.73	2.55	2.47	2.83	3.02	2.73
1933-34	....	3.09	2.82	2.79	2.72	2.65	3.23	....	2.88
1934-35	3.25	2.66	2.75	2.81	2.98	3.26	2.89	4.08	2.93
1935-36	3.92	3.43	2.95	3.21	3.03	3.03	3.37	3.83	3.17
1936-37	3.95	2.93	3.60	4.21	3.99	4.15	4.60	....	3.84

* Includes an average in October, 1930, of $5.13.

Sources of data:

1926-27 to 1935-36: United States Department of Agriculture. Agricultural statistics **1937**:160. 1937.
1936-37: United States Department of Agriculture Bureau of Agricultural Economics, Division of Statistical and Historical Research. Correspondence.

TABLE 30

WEIGHTED AVERAGE AUCTION PRICE PER BOX OF FLORIDA ORANGES, CHICAGO* AND NEW YORK, BY MONTHS, 1926–27 TO 1936–37

Season	October	November	December	January	February	March	April	May	June	July	Average for season
Chicago											
	dollars	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*
1926-27	3.89	4.17	2.92	3.25	3.55	3.38	4.38	3.97	3.29	....	3.55
1927-28	4.06	4.99	4.89	4.40	5.03	5.79	5.89	7.95	3.12	....	5.08
1928-29	3.45	3.09	3.16	2.97	3.01	3.14	2.70	2.91	2.70	2.34	2.96
1929-30	....	4.15	4.18	4.03	4.41	5.15	6.76	5.71	....	....	4.72
1930-31	4.58	3.01	2.50	2.68	2.98	3.72	3.76	3.70	3.83	....	3.33
1931-32	2.62	2.97	2.74	2.86	3.18	3.52	3.83	3.59	3.29	....	3.24
1932-33	....	3.03	2.76	2.67	2.44	2.43	2.36	2.29	2.55	2.76	2.52
1933-34	1.74	2.42	2.31	2.48	2.45	2.79	2.83	3.43	4.19	....	2.68
1934-35	3.04	2.71	2.30	2.35	2.47	2.59	3.09	2.67	2.23	1.39	2.58
1935-36	2.99	3.07	3.01	2.91	3.21	3.07	3.16	3.73	3.74	....	3.18
1936-37	3.30	2.71	2.45	3.07	3.41	3.94	4.06	3.78	3.78	4.03	3.34
New York											
	dollars	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*
1926-27	3.70	4.79	3.53	3.76	3.91	4.10	4.86	4.75	4.54	3.12	4.11
1927-28	3.67	6.31	5.59	5.23	5.97	6.29	6.84	8.58	9.11	....	6.24
1928-29	5.08	3.71	3.55	3.45	3.30	3.30	3.55	3.33	2.99	2.92	3.40†
1929-30	3.42	4.04	4.21	4.49	4.44	4.98	7.13	7.42	6.60	....	4.94
1930-31	4.76	3.45	3.01	2.91	3.19	3.79	3.80	3.85	4.02	4.62	3.54‡
1931-32	2.64	3.20	3.11	3.10	3.38	3.55	3.75	3.63	3.59	4.38	3.43
1932-33	2.88	3.21	2.79	2.81	2.31	2.32	2.17	2.17	2.21	2.78	2.43§
1933-34	2.47	2.49	2.36	2.44	2.43	2.84	2.75	3.55	4.66	3.26	2.78¶
1934-35	3.20	2.64	2.42	2.43	2.48	2.77	3.23	2.72	2.10	1.92	2.61‖
1935-36	2.84	3.12	2.84	2.84	3.05	2.98	2.91	3.60	3.59	3.83	3.04
1936-37	3.05	2.72	2.38	2.94	3.42	3.84	3.74	3.56	3.68	4.88	3.25**

* Beginning October, 1936, excludes Bruce boxes.

† Includes an average in August, 1929, of $2.29.

‡ Includes an average in September, 1930, of $2.61.

§ Includes an average in August, 1933, of $3.69.

¶ Includes an average in September, 1933, of $2.46.

‖ Includes an average in August, 1935, of $1.61.

** Includes an average in September, 1936, of $3.53.

Sources of data:

1926-27 to 1935-36: United States Department of Agriculture. Agricultural statistics **1937**:160. 1937.
1936-37: United States Department of Agriculture Bureau of Agricultural Economics, Division of Statistical and Historical Research. Correspondence.

TABLE 31

ORANGES: AVERAGE "ON-TREE" PRICE PER BOX RECEIVED BY GROWERS FOR FRUIT FOR FRESH CONSUMPTION, FLORIDA,* 1918–19 TO 1936–37 BY MONTHS

Year	September	October	November	December	January	February	March	April	May	June	July	August
					Oranges, other than tangerines							
	dollars	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*
1918-19	....	....	....	....	2.05	2.80	3.40	3.50	4.45	4.60	....	....
1919-20	....	1.45	1.30	1.55	1.70	3.55	4.20	5.85	4.05	4.40	....	....
1920-21	....	2.30	1.30	0.75	1.40	1.00	1.30	1.75	2.90	3.95	....	....
1921-22	....	1.45	1.35	1.45	1.55	2.25	4.20	4.30	5.85	6.25	6.30	....
1922-23	4.20	1.90	1.45	1.35	1.65	1.70	2.00	2.80	2.10	1.80	1.30	1.90
1923-24	2.00	0.85	0.60	0.40	0.30	0.40	0.55	0.85	1.40	2.00	1.65	2.40
1924-25	....	2.30	1.05	0.95	0.95	2.15	3.35	3.95	5.00	5.25	....	....
1925-26	....	4.80	2.75	1.60	1.40	2.00	2.40	2.70	3.15	3.80	....	....
1926-27	....	2.05	1.60	1.05	1.20	1.20	1.50	2.00	1.95	1.85	1.50	....
1927-28	3.65	2.20	2.00	2.25	2.40	3.00	3.65	4.00	5.00	5.50	....	....
1928-29	....	1.70	0.85	1.00	0.70	0.55	0.70	0.80	0.35	0.25	....	....
1929-30	....	0.65	1.30	1.60	1.50	1.65	2.75	4.10	3.45	....	....	....
1930-31	1.30	1.70	1.00	0.70	0.70	0.80	1.20	1.60	1.50	1.80	1.50	....
1931-32	....	1.10	1.10	1.05	1.15	1.25	1.70	1.90	1.95	2.00	....	....
1932-33	....	1.15	1.10	0.90	0.80	0.60	0.50	0.40	0.40	0.65	0.85	....
1933-34	....	0.70	0.70	0.65	0.75	0.80	1.00	1.20	1.70	2.30	....	....
1934-35	1.10	1.10	0.75	0.65	0.70	0.80	1.00	1.60	1.15	0.70	0.80	....
1935-36	....	1.10	1.20	1.15	1.10	1.30	1.05	1.10	1.60	1.70	....	....
1936-37	....	1.20	0.90	0.80	1.10	1.70	1.90	1.95	1.80	2.10	1.70	....

* "On-tree" equivalents of prices were derived from the prices received by growers f.o.b. car and at the packing-house. The costs of picking, hauling, and packing used in converting f.o.b. and packing-house-door prices to the "on-tree" prices were based on surveys made by the California College of Agriculture. The original data were obtained from crop reporters, independent dealers, state agencies, and coöperative marketing associations, and include both packed oranges and oranges sold loose, for fresh consumption. In Florida, it is a rather common practice for whole groves of fruit to be sold at one time; hence there is generally a smaller seasonal fluctuation in "on-tree" prices than in f.o.b. or auction prices, and consequently the spread between f.o.b. and "on-tree" prices may show considerable seasonal variation.

(*Table concluded on next page.*)

TABLE 31—(*Concluded*)

Year	September	October	November	December	January	February	March	April	May	June	July	August
Tangerines												
	dollars	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*
1918-19	....	....	....	....	3.65	4.40	4.40	2.20	3.45	....	....	....
1919-20	....	1.55	4.30	4.05	4.15	5.45	3.35	1.20	0.70	....	....	....
1920-21	....	2.75	4.55	2.85	4.40	4.55	2.40	2.65	0.30	....	....	....
1921-22	....	0.20	4.35	4.75	3.70	4.30	3.10	3.15	2.35	1.05	....	....
1922-23	....	1.60	2.95	3.00	2.70	3.20	3.90	3.35	1.35	0.90	....	....
1923-24	....	1.55	3.20	1.80	3.30	4.45	3.25	2.00	0.90	....	....	....
1924-25	....	6.10	3.80	2.85	2.10	2.80	3.35	3.45	2.90	....	....	....
1925-26	....	2.95	4.35	3.95	2.25	2.65	3.90	5.00	2.35	....	....	....
1926-27	....	2.20	2.35	1.90	1.45	1.45	1.90	1.90	1.00	....	....	....
1927-28	....	2.00	3.55	3.40	3.95	4.45	4.00	3.65	....	....	....	....
1928-29	....	1.15	2.00	1.60	1.60	1.10	0.60	0.30	....	....	....	....
1929-30	....	1.50	2.15	1.60	1.15	2.55	3.85	4.10	....	....	....	....
1930-31	....	....	0.90	0.60	0.05	0.25	0.60	....	....	....	....	....
1931-32	....	....	1.10	0.65	0.10	0.70	1.25	....	....	....	....	....
1932-33	....	1.40	1.40	0.50	0.25	0.20	0.25	0.25	....	....	....	....
1933-34	....	1.25	0.80	0.50	0.40	0.75	1.30	....	....	....	......	....
1934-35	....	0.85	0.70	0.50	0.30	0.75	0.85	....	....	....	....	....
1935-36	....	0.60	1.70	0.95	0.45	0.50	1.45	....	....	....	....	....
1936-37	....	0.35	0.65	0.25	0.05	0.25	1.20	1.15	....	......	....	....

Source of data:
United States Department of Agriculture Bureau of Agricultural Economics. Average prices received by farmers for farm products. October, 1937. (Mimeo.)

TABLE 32

ORANGES: AVERAGE "ON-TREE" PRICE PER BOX RECEIVED BY GROWERS FOR FRUIT FOR FRESH CONSUMPTION, CALIFORNIA,* 1918–19 TO 1936–37 BY MONTHS

Year	November	December	January	February	March	April	May	June	July	August	September	October
						Navel and miscellaneous oranges						
	dollars	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*
1918-19	....	....	2.10	2.80	2.80	2.50	2.30	1.15	1.50	....	....	....
1919-20	3.05	2.50	2.70	3.35	2.95	3.20	2.15	2.45	2.40	3.00	....	....
1920-21	2.20	1.25	1.30	1.05	1.10	1.45	1.95	2.10	....	....	....	2.00
1921-22	3.15	2.30	2.15	2.90	3.55	3.50	4.45	....	....	....	....	....
1922-23	2.35	1.70	1.60	1.70	1.60	2.05	1.55	1.90	1.70	2.55	....	2.85
1923-24	1.40	1.05	1.20	0.95	1.30	1.15	1.10	2.05	1.10	....	....	3.30
1924-25	1.90	2.30	2.10	2.60	2.85	3.40	3.90	3.85	....	....	....	4.60
1925-26	3.00	2.15	2.35	2.45	2.70	2.85	2.90	1.95	....	....	....	4.25
1926-27	3.05	2.40	2.45	2.50	2.20	2.30	2.25	....	....	....	....	....
1927-28	3.85	2.95	2.95	3.20	3.35	4.05	5.35	....	....	....	....	4.15
1928-29	2.75	2.55	2.10	1.40	1.25	1.60	1.20	1.20	....	....	....	2.40
1929-30	3.45	3.40	3.20	3.20	3.75	3.90	4.60	3.90	2.15	....	....	3.65
1930-31	2.10	1.20	1.20	1.20	1.10	1.35	1.70	0.45	0.25	0.25	....	1.85
1931-32	1.35	1.00	0.95	1.20	1.00	1.10	1.35	0.40	0.20	....	....	....
1932-33	0.95	0.85	0.80	0.60	0.55	0.45	0.95	1.15	0.20	0.10	....	....
1933-34	1.05	1.25	1.05	0.95	0.85	1.00	1.35	0.90	0.65	0.30	....	....
1934-35	1.15	0.90	1.00	1.00	1.15	1.00	1.00	0.45	0.25	....	....	....
1935-36	1.50	1.35	1.10	1.25	1.05	1.10	1.45	1.70	0.80	0.60	....	....
1936-37†	1.20	0.95	1.65	1.95	2.00	2.25	2.75	1.50	....	....	....	....

* "On-tree" equivalents of prices were derived from the prices received by growers f.o.b. car and at the packing-house. The costs of picking, hauling, and packing used in converting f.o.b. and packing-house-door prices to the "on-tree" prices were based on surveys made by the California College of Agriculture. The original data were obtained from records of growers, shippers, and coöperative marketing associations, and include both packed oranges and oranges sold loose for fresh consumption.

† Preliminary.

(Table continued on next page.)

TABLE 32—(*Concluded*)

Year	November	December	January	February	March	April	May	June	July	August	September	October
						Valencia oranges						
	dollars	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*
1918-19	....	....	....	....	2.70	1.50	2.75	2.10	2.70	2.20	2.65	2.45
1919-20	2.85	....	....	....	3.10	3.25	2.65	3.55	3.30	4.10	3.80	4.95
1920-21	2.70	0.15	....	....	1.25	1.55	1.90	2.00	2.45	2.05	2.95	2.45
1921-22	3.05	0.95	....	....	3.15	3.60	3.90	3.95	3.95	3.75	3.55	1.60
1922-23	1.55	0.75	....	....	1.25	1.70	1.60	1.95	1.30	1.70	2.15	2.40
1923-24	3.20	....	....	....	2.10	1.10	1.90	1.55	1.90	2.75	2.60	3.10
1924-25	2.25	....	....	....	....	3.05	3.85	4.00	3.65	4.00	4.75	5.65
1925-26	1.95	....	....	....	2.40	2.15	1.95	2.05	2.55	2.05	3.45	3.70
1926-27	4.20	....	....	....	2.75	2.15	2.15	2.55	3.40	3.40	4.40	3.85
1927-28	4.75	....	....	....	3.70	3.80	4.30	4.20	4.75	4.85	4.60	4.85
1928-29	3.20	....	....	....	2.75	2.05	1.75	1.55	1.80	1.90	2.10	1.90
1929-30	2.30	2.25	....	....	4.60	4.45	5.10	4.70	4.90	4.70	5.50	5.70
1930-31	0.60	0.15	....	....	1.35	1.35	1.05	1.40	1.50	1.25	1.60	1.65
1931-32	1.00	1.90	....	....	1.45	0.85	1.05	1.10	1.00	0.85	1.10	1.15
1932-33	1.60	1.70	....	....	1.65	0.80	0.90	0.95	1.15	1.10	1.40	1.15
1933-34	0.70	0.60	....	....	1.10	1.40	1.80	2.15	1.80	1.80	1.75	2.55
1934-35	2.10	....	....	....	1.35	1.40	1.25	1.05	1.35	1.40	1.30	1.40
1935-36	1.45	1.10	....	....	1.40	1.60	1.55	1.70	1.85	1.90	2.25	2.00
1936-37†	2.35	....	....	....	2.10	2.40	2.25	2.55	2.95	3.05	3.15	3.10

	All oranges											
	dollars	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*	*dollars*
1918-19........	....	....	2.10	2.80	2.75	2.50	2.50	2.00	2.50	2.20	2.65	2.45
1919-20.........	2.90	2.50	2.70	3.35	2.95	3.25	2.50	3.50	3.30	4.10	3.80	4.95
1920-21.........	2.35	1.25	1.30	1.05	1.10	1.45	1.90	2.00	2.45	2.05	2.95	2.40
1921-22.........	3.10	2.30	2.15	2.90	3.50	3.55	3.90	3.95	3.95	3.75	3.55	1.60
1922-23.........	2.15	1.70	1.60	1.70	1.60	2.00	1.55	1.95	1.30	1.70	2.15	2.40
1923-24.........	1.50	1.05	1.20	0.95	1.30	1.15	1.50	1.60	1.90	2.75	2.60	3.10
1924-25.........	1.95	2.30	2.10	2.60	2.85	3.35	3.90	4.00	3.65	4.00	4.75	5.65
1925-26.........	3.00	2.15	2.35	2.45	2.70	2.55	2.00	2.05	2.55	2.05	3.45	3.70
1926-27.........	3.15	2.40	2.45	2.50	2.20	2.25	2.15	2.55	3.40	3.40	4.35	3.85
1927-28.........	4.10	2.95	2.95	3.20	3.35	3.95	4.30	4.20	4.75	4.85	4.60	4.85
1928-29.........	2.75	2.55	2.10	1.40	1.25	1.65	1.45	1.55	1.80	1.90	2.10	1.90
1929-30.........	2.85	3.35	3.20	3.20	3.80	4.15	5.05	4.70	4.90	4.70	5.50	5.35
1930-31.........	2.10	1.20	1.20	1.20	1.10	1.35	1.15	1.40	1.50	1.25	1.60	1.65
1931-32.........	1.25	1.00	0.95	1.20	1.00	1.00	1.10	1.10	1.00	0.85	1.10	1.15
1932-33.........	1.10	0.85	0.80	0.60	0.55	0.50	0.90	0.95	1.15	1.10	1.40	1.15
1933-34.........	0.75	1.20	1.05	0.95	0.85	1.00	1.70	2.15	1.80	1.80	1.75	2.55
1934-35.........	1.15	0.90	1.00	1.00	1.15	1.10	1.25	1.05	1.35	1.40	1.30	1.40
1935-36.........	1.45	1.35	1.10	1.25	1.05	1.15	1.50	1.70	1.85	1.90	2.25	2.00
1936-37†........	1.25	0.95	1.65	1.95	2.00	2.30	2.25	2.55	2.95	3.05	3.15	3.10

† Preliminary.

Source of data:

United States Department of Agriculture Bureau of Agricultural Economics. Average prices received by farmers for farm products. October, 1937. (Mimeo.)

TABLE 33

UNITED STATES RECEIPTS OF ORANGES FROM PUERTO RICO BY MONTHS, AVERAGES 1923–24 TO 1927–28 AND 1931–32 TO 1935–36; ANNUALLY 1928–29 TO 1936–37

Month	Average 1923-24 to 1927-28	1928-29	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	Average 1931-32 to 1935-36
	boxes	*boxes*	*boxes*	*boxes*	*boxes*	*boxes*	*boxes*	*boxes*	*boxes*	*boxes*	*boxes*
November	59,611	5,635	21,111	12,977	15,631	3,077	6,660	7,229	951	141	6,710
December	37,327	1,925	23,377	1,397	2,622	4,146	1,472	2,840	565	711	2,329
January	24,955	2,955	67,985	5,771	2,048	1,588	1,194	3,041	806	156	1,735
February	53,587	46	49,029	4,722	5,048	2,191	2,221	466	58	200	1,997
March	68,456	5	26,833	36,717	2,190	460	2,155	409	242	826	1,091
April	35,732	35	16,273	7,857	643	5	1,068	56	30	41	360
May	8,309	......	1,800	1,139	2	......	1,138	7	3	2	229
June	264	1	......	1,605	......	......	847	1	......	......	170
July	249	......	......	484	27	1	48	......	......	......	15
August	1,087	36	152	153	62	1	86	......	......	17	30
September	8,198	764	4,096	1,206	193	45	299	1	......	612	108
October	67,330	14,145	46,011	9,249	1,799	2,064	2,950	1,906	538	951	1,852
Total	365,105	25,547	256,667	83,277	30,265	13,578	20,138	15,956	3,193	3,657	16,626

Source of data:
California Fruit Growers' Exchange. Correspondence.

TABLE 34

UNITED STATES ORANGE EXPORTS BY COUNTRIES, 1929–30 TO 1936–37*

Country	1929-30	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	Average 1933-34 to 1935-36	
	1,000 boxes	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*1,000 boxes*	*per cent*
United Kingdom	48	1,136	414	866	757	1,642	759	23	1,053	24.4
Belgium	†	6	37	25	41	141	39	†	74	1.7
Denmark	†	5	†	4	4	3	†	†	2	0.0
France	†	34	14	58	69	352	400	11	274	6.4
Germany	†	282	67	95	64	24	22	†	37	0.9
Netherlands	†	72	43	64	52	256	56	1	121	2.8
Norway	†	25	18	12	28	82	67	20	59	1.4
Sweden	†	35	32	27	52	96	98	30	82	1.9
Other Europe	1	3	6	9	8	117	40	3	55	1.3
Total Europe	49	1,598	631	1,160	1,075	2,713	1,481	88	1,757	40.8
Canada	1,953	3,137	2,405	2,015	1,963	2,380	2,426	2,204	2,256	52.3
Newfoundland and Labrador	8	16	15	13	16	20	21	18	19	0.4
Mexico	8	3	1	1	11	14	13	12	13	0.3
Panama	3	4	4	5	4	5	7	4	5	0.1
Philippines	40	49	53	55	58	84	78	54	73	1.7
China	20	32	34	50	54	55	55	27	55	1.3
Hongkong	10	15	20	29	33	56	39	21	43	1.0
Kwangtung	‡	1	2	2	1	2	2	1	2	0.0
British Malaya	15	12	8	9	10	14	17	10	14	0.3
Japan	5	5	4	3	4	5	7	3	5	0.1
New Zealand	51	40	12	26	37	42	32	20	37	0.9
Others	27	24	14	26	30	35	32	26	32	0.8
Total	2,140	3,338	2,572	2,234	2,221	2,712	2,729	2,400	2,554	59.2
Grand total	2,189	4,936	3,203	3,394	3,296	5,425	4,210	2,488	4,311	100.0

* Marketing year, November-October.

† In "other Europe."

‡ In "others."

Sources of data:

1929-30 to 1934-35: United States Department of Agriculture Bureau of Agricultural Economics, Foreign Agricultural Service Division. Statistics relating to the orange industry **1935-36**:25. May, 1936. (Mimeo.)

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